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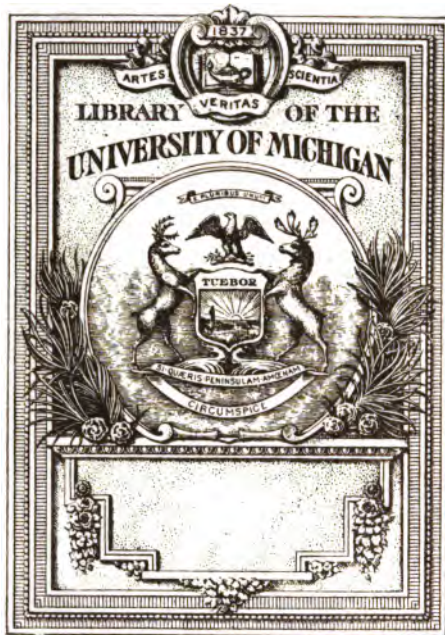
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U. S. DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

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FOREIGN LABOR LAWS SERIES: No. 1

ADMINISTRATION OF LABOR LAWS
AND FACTORY INSPECTION IN
CERTAIN EUROPEAN COUNTRIES



FEBRUARY 27, 1914

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SERIES OF BULLETINS PUBLISHED BY THE BUREAU OF LABOR STATISTICS.

The publication of the Annual and Special Reports and of the bimonthly Bulletin has been discontinued, and since July, 1912, a Bulletin has been published at irregular intervals. Each number contains matter devoted to one of a series of general subjects. These Bulletins are numbered consecutively in each series and also carry a consecutive whole number, beginning with No. 101. A list of the series, together with the individual Bulletins falling under each, is given below. A list of the Reports and Bulletins of the Bureau issued prior to July 1, 1912, will be furnished on application.

Wholesale Prices.

- No. 1. Wholesale prices, 1890 to 1912. (Bul. No. 114.)

Retail Prices and Cost of Living.

- No. 1. Retail prices, 1890 to 1911: Part I. (Bul. No. 105: Part I.)
Retail prices, 1890 to 1911: Part II—General tables. (Bul. No. 105: Part II.)
- No. 2. Retail prices, 1890 to June, 1912: Part I. (Bul. No. 106: Part I.)
Retail prices, 1890 to June, 1912: Part II—General tables. (Bul. No. 106: Part II.)
- No. 3. Retail prices, 1890 to August, 1912. (Bul. No. 108.)
- No. 4. Retail prices, 1890 to October, 1912. (Bul. No. 110.)
- No. 5. Retail prices, 1890 to December, 1912. (Bul. No. 113.)
- No. 6. Retail prices, 1890 to February, 1913. (Bul. No. 115.)
- No. 7. Sugar prices, from refiner to consumer. (Bul. No. 121.)
- No. 8. Retail prices, 1890 to April, 1913. (Bul. No. 125.)
- No. 9. Wheat and flour prices, from farmer to consumer. (Bul. No. 130.)
- No. 10. Retail prices, 1890 to June, 1913. (Bul. No. 132.)
- No. 11. Retail prices, 1890 to August, 1913. (Bul. No. 133.)
- No. 12. Retail prices, 1890 to October, 1913. (Bul. No. 138.)
- No. 13. Retail prices, 1890 to December, 1913. (Bul. No. 140.)

Wages and Hours of Labor.

- No. 1. Wages and hours of labor in the cotton, woolen, and silk industries, 1890 to 1912. (Bul. No. 128.)
- No. 2. Wages and hours of labor in the lumber, millwork, and furniture industries, 1890 to 1912. (Bul. No. 129.)
- No. 3. Union scale of wages and hours of labor, 1907 to 1912. (Bul. No. 131.)
- No. 4. Wages and hours of labor in the boot and shoe and hosiery and knit goods industries, 1890 to 1912. (Bul. No. 134.)
- No. 5. Wages and hours of labor in the cigar and clothing industries, 1911 and 1912. (Bul. No. 135.)
- No. 6. Wages and hours of labor in the building and repairing of steam railroad cars. (Bul. No. 137.)

Women in Industry.

- No. 1. Hours, earnings, and duration of employment of wage-earning women in selected industries in the District of Columbia. (Bul. No. 116.)
- No. 2. Working hours of women in the pea canneries of Wisconsin. (Bul. No. 119.)
- No. 3. Employment of women in power laundries in Milwaukee. (Bul. No. 122.)

Workmen's Insurance and Compensation (including laws relating thereto).

- No. 1. Care of tuberculous wage earners in Germany. (Bul. No. 101.)
- No. 2. British National Insurance Act, 1911. (Bul. No. 102.)
- No. 3. Sickness and accident insurance law of Switzerland. (Bul. No. 103.)
- No. 4. Law relating to insurance of salaried employees in Germany. (Bul. No. 107.)
- No. 5. Workmen's compensation laws of the United States and foreign countries. (Bul. No. 126.)

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ADMINISTRATION OF LABOR LAWS AND FACTORY INSPECTION IN CERTAIN EUROPEAN COUNTRIES.¹

BY GEORGE M. PRICE, M. D.

INTRODUCTION.

The amount of protection given to the laboring class is determined not by the number of labor laws upon the statute books, but by the number of such laws which are properly administered, and by the extent to which their provisions are actually enforced.

The attempts at protection of workers by legislative enactments date far back to the beginning of the nineteenth century. At that time many laws were enacted in a number of countries, without, however, remedying abuses or improving the conditions of the workers. Hence, as a rule, labor legislation of that period was a dead letter until administrative machinery was created for the enforcement of the legislative enactments.

In most of the European countries factory inspection was instituted much later than the enactment of labor laws. It was practically forced upon the Governments as a result of the futility of protection given by mere acts upon statute books without enforcement provisions or enforcement machinery.

In England labor legislation which began with the apprentice law of 1802, and was followed by the laws of 1819, 1825, and 1831, was

¹ In his investigations the author was assisted by so many different persons in each country that it is a difficult matter to make proper individual acknowledgment to all those who have helped in one way or another. He has been generously assisted by United States ambassadors and ministers in the countries visited, by the ministries and heads of labor departments in each country, by prominent social workers, by professors of industrial hygiene, by inspectors in the departments, and by many labor leaders.

Special acknowledgments are due to Prof. Stephen Bauer, general secretary of the International Labor Office at Basel; to Sir Thomas Oliver, who gave the author valuable introductions to a great number of persons in different countries; and to the venerable privy councilor Dr. Karl Hartmann, of Berlin, who made the author's stay in Germany not only instructive but also very pleasant.

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admittedly ineffective until the act of 1833, which instituted factory inspection.

In France a number of laws for the protection of workers were passed, beginning with the ordinance of 1806 and followed by the acts of 1813, 1814, 1841, 1848, 1851, 1866; but not until 1874, when the labor-inspection department was created, was any serious attempt made at the enforcement of the provisions of those laws.

In Prussia and in the German States labor legislation began in 1839 with the regulation of the employment of young workers in factories; then followed the code of 1845, the amendments of 1853, and the industrial code for the North German Union of 1869; but not until 1878 was a special administrative body appointed to enforce the provisions of these laws.

In Austria attempts at labor legislation began in 1786, and were followed by decrees and laws in 1805, 1816, 1842, 1846, 1854, and 1859; but not until 1883 was a department of labor inspection instituted to enforce their provisions.

In Switzerland many legislative enactments were made by the cantons for labor protection; but not until 1859 was an attempt made to enforce the laws by a special administrative body in Zurich, and the Federal bureau of inspection was not created until 1877.

In Belgium protective labor laws began in 1813, but the first inspectorial force, which was comparatively small, was not appointed until 1888, and it was only upon the reorganization of this force in 1895 that a fairly adequate department was created for the enforcement of the laws.

Similar conditions exist in other countries where labor and factory inspection departments have been created some time after the enactments of labor laws, when it became apparent that the mere enactment of laws did not satisfy the workers or give them the protection desired.

The extent of the protection given by a country to its laboring class depends not only upon the mere existence of an administrative institution and enforcing department, but also upon its efficiency, the scope of its powers and functions, the extent of assistance given to it by other administrative institutions, the methods of work which are adopted by the officials of the department, and the number and character of such officials.

The amount of actual protection given by a factory-inspection department to the laboring class in a country can be judged only by a knowledge of the industrial conditions prevailing in that country, the character of the labor laws on the statute books, and the extent to which such laws are enforced.

It is, however, a most difficult task—perhaps an impossible one—to make such a study, at least without a long sojourn in the country.

What is less difficult is to secure information as to the labor protection given by a factory-inspection department by a study of the department itself, its form of organization, its methods of work, the standards adopted by it, the number and character of its personnel, and its own reports as to work done and improvements obtained. This information, while perhaps less valuable, is, however, within the reach of a trained observer and student of factory inspection, if given proper opportunity.

It was the good fortune of the writer to be able to make an investigation of the administration of labor and factory inspection in certain European countries during the summer of 1913, after nearly two years of activity as director of investigation of the New York Factory Investigating Commission, and after long experience as sanitary and factory inspector. The investigation was confined to the following countries: England, Germany, France, Austria, Switzerland, and Belgium. The time devoted to this study was only four months, and was necessarily limited to a period of from two to four weeks in each country.

No examination was made of the administration of mining laws or of the enforcement of accident prevention or of the relation of factory inspection to sickness and social insurance.

The investigation was conducted by actual inspectorial work in company with the inspectors of the departments in different countries, by interviews with inspectors, representatives of labor organizations, and labor leaders in each country, and by a thorough study of the labor laws and the reports of the departments.

In this report the plan is followed of first giving a brief historical sketch of the development of labor legislation and the growth of factory inspection in each country; for such a historical study seemed necessary to a proper understanding of the present conditions and methods of the factory inspectors, and their relations with other administrative institutions in the country.

A brief account is then given of the scope of the existing labor laws, the jurisdiction, rights, and duties of labor inspectors, the scope of their work, and their functions.

This is followed by an account of the form of organization of each department, the grading and classification of inspectors, their number, character, compensation, tenure of office, personnel, and the methods of their selection and appointment.

An account is then given of the actual work performed by the inspectors during the last year for which an official report was available. The report is completed by a discussion of the methods of work of the inspectors, as well as an account of such standards as are found in the countries studied.

COMPARISON BETWEEN COUNTRIES DIFFICULT.

No attempt has been made in this report to compare the efficiency of the administrative machinery of factory inspection in one country with that of another or to give an *ex cathedra* opinion as to the comparative value of labor enforcement in the countries visited.

One reason why a comparison is so difficult is the difference in the scope of the labor laws and the functions of labor and factory inspectors in the different countries. In a country such as Switzerland, for instance, the duties of inspectors are limited to actual inspectorial work in a factory. On the other hand, in England even domestic workshops are under the jurisdiction of the inspector, and the inspector not only does actual inspectorial work, but also has charge of court prosecution. In Austria an inspector is also supposed to be a mediator and conciliator in times of strikes.

Moreover, unless definite functions are assigned inspectors, and unless not only the actual number of industrial establishments within the jurisdiction of the inspector but also the size and character of these establishments are known, a just comparison of the work of inspectors by mere number of inspections made is without value.

Other important considerations are the character of the inspectors, the respect and confidence which the employers and manufacturers have in their technical and general training, and the consideration which they are willing to give to their advice and requirements.

There is still another important factor in the comparative efficiency of factory inspection in different countries, and this is the temperament of the working people. Military service, a strong spirit of obedience and discipline, and general education of the laboring class make a great difference in the amount of popular respect for the labor laws and of cooperation in their enforcement.

FORMS OF ORGANIZATION.

There is a variety of forms of organization of the labor and factory inspection departments in the different countries studied. Among these may be distinguished two extremes—(1) the highly centralized form of organization of the factory inspection department in England, and (2) the decentralized form of organization as it exists to-day in Prussia and partly in Switzerland. Between these two extremes there are many gradations, so that in some countries is found a mixture of centralization and decentralization—a centralization sometimes of the upper strata of the inspectorial force, and a decentralization of the lower strata, or vice versa.

SPECIALIZATION OF FUNCTIONS.

The same variety may be said to exist in the specialization of functions. While England presents an example of a complex organization with a distinct and thorough specialization of the functions among the inspectors, in other countries, for instance in Prussia, there is no such specialization or division of labor, and each inspector performs all the complex functions of labor inspection.

The oldest factory-inspection department in Europe, the one having the most centralized form of organization and at the same time the one in which the specialization of functions is carried very far, is the factory-inspection department of England. Here is found a thoroughly centralized department with a responsible chief inspector, from whom all power radiates—first to the division inspectors, then to the district inspectors, then to the lower grades of inspectors. Here also is a division of labor—first between two large classes of work places, factories, and workshops; then between men and women inspectors. Here also are special functional inspectors, such as medical factory inspectors, dangerous-trades inspectors, electrical inspectors, inspectors of light, inspectors of textile particulars, etc.

In Prussia and Switzerland, also in some of the lesser German States, there is no chief inspector, and each district inspector is the head of his district, having very little responsibility to superiors, with standards of his own making, with the whole field of industrial inspection under his own jurisdiction.

In Austria is found a central industrial inspector, although the amount of supervision is not so extensive as in England; but there is a division of labor among certain inspectors. Thus, there are inspectors of building construction, shipping industries, inland waterways, etc., although ordinary inspectors are supposed to fill all inspection requirements, no matter what the nature or character. There are no physicians or other specialists in the department.

In France there is practically no head to the inspection department, and while the divisional inspectors have supervision over the departmental inspectors, the supervision is more perfunctory than real. The division inspectors are charged with a great deal of inspectorial work which leaves them little opportunity for actual work of supervision.

In the States constituting the German Empire there is variety in the forms of organization. Thus, while in Baden there is a centralized industrial inspection department, that of Bavaria is less centralized, and of Saxony still less so, and there are some States in which there is hardly any central authority whatever.

The same may be said about specialization of functions. Bavaria has one medical supervisor as has also Baden, while in other States

there is hardly any specialization of functions. In Saxony inspectors until lately also performed boiler inspection work.

In Switzerland the inspection of electrical establishments has been taken entirely out of the jurisdiction of the factory inspectors.

RELATION WITH OTHER ADMINISTRATIVE AUTHORITIES.

Labor-law enforcement is also characterized in the different countries by diverse ancillary administrative bodies and institutions for the enforcement of labor laws.

In some countries, notably in France and Belgium, the whole work is centered in the labor inspection departments, and the only assistance from outside bodies that these departments receive is from the regular prosecuting and judicial functionaries.

In other countries, for instance in England, the local authorities are a coexisting enforcing agency, having jurisdiction over the enforcement of all sanitary provisions in workshops. This division of enforcement between the factory inspection department and the local authorities is the result of certain developments which may be understood only by a study of the historical growth of administrative institutions in England.

In Germany there are practically three great bodies having charge of the administration of factory laws: First, the industrial inspectors who inspect factories and workshops in relation to sanitation, safety, and general industrial conditions; second, the inspectors of the insurance associations who are charged with prevention of accidents; and, third, the police authorities who, on the one hand, do a great deal of inspection and reinspection work as well as the gathering of statistical data, and on the other hand have sole jurisdiction over actual enforcement by judicial and administrative procedures.

In Austria there is considerable division of labor between the industrial inspectors and the local industrial authorities who have charge of the enforcement and the general administration of the laws.

In Switzerland there is division of jurisdiction between the Federal factory inspectors and the cantonal inspectors, and the enforcement of the law is entirely in the hands of the local police and the cantonal authorities.

This division of jurisdiction in the enforcement of labor laws is on the one hand advantageous, because it gives so much less work to the labor or factory inspection department, and makes it possible for more industrial establishments to be inspected. On the other hand, it carries a great many disadvantages in the division of authority between the enforcing institutions, in the certain lack of uniformity in the standards of inspection, and in the inevitable friction resulting from the work of the various inspectorial enforcing institutions.

MEDICAL FACTORY INSPECTION.

The enforcement of laws protecting workers in industrial establishments so closely involves matters of sanitation, hygiene, and medicine, that there has been great agitation in different countries for the appointment of medical factory inspectors.

England and Belgium are so far the only countries where separate medical divisions exist in the factory inspection departments. In each of these countries there is a chief medical factory inspector of high grade, assisted by a number of physicians, making investigations of occupational diseases, supervising medical work in dangerous trades, and doing specialized work in industrial hygiene. In these two countries a supplementary force of physicians is appointed to examine minors and children, investigate industrial accidents, and control dangerous trades.

There is no medical factory inspection whatever in France, Switzerland, Austria, Prussia, and most of the German States. In Switzerland an eminent physician is often consulted by the factory inspectors and makes special tests for them; and the first inspector was a physician who did much work in industrial hygiene.

In Prussia district physicians may be called in, especially for the authorization of certain dangerous establishments.

In Austria a medical consultant has been lately appointed. Bavaria and Baden each has a physician connected with the department.

Medical factory inspection is still an undeveloped field of work; and even in England and Belgium the number of physicians is still small.

WOMEN INSPECTORS.

In almost all the countries there has been agitation for the appointment of women inspectors, and the governments of different countries have responded in varying degrees to this agitation.

In England not only are there 20 women inspectors, but the women inspectors actually constitute a separate division within the department, are to a large extent independent in their work and functions, and are subject only to perfunctory supervision by the chief factory inspector. Such a position of women inspectors is unique, and is characteristic of England only. This report¹ gives some indication as to the causes of such a phenomenon.

There are 18 women inspectors in France. There were 2 women inspectors in Belgium, but now there is only 1. There are 5 women inspectors in Austria; none in Prussia; none in the Federal inspection department of Switzerland, and but few here and there in the German States. Outside of England the functions of the women

¹ See pp. 51-54.

inspectors are limited to the inspection of smaller shops where chiefly women and children are employed. Their position is of a lower grade than that of the male inspectors; their salaries are much smaller; but their work is an integral part of the work of each district, except perhaps in Belgium, where they work more or less independently and have charge also of certain mercantile establishments.

WORKINGMEN INSPECTORS.

There is still greater agitation and more strenuous efforts are being made for the appointment of inspectors coming from the laboring class. This subject has been discussed and agitated with considerable bitterness, especially by labor men and representatives of labor organizations. The agitation is for the appointment of workingmen—those who have had personal experience in manual work and actual experience in factories and workshops. The demand is made for the creation of a lower grade of inspectors composed of this class, to be selected without examination or with a special examination, and for opportunity for these inspectors to pass into the higher grades and become regular inspectors.

There is much opposition in some countries to this demand. This opposition very often comes not only from the Government but also from the inspectors themselves, for reasons which are fully discussed in the body of this report.

In England the inspectors are divided into two classes, the lower grade consisting of workmen inspectors numbering 55. Their functions are limited, their salaries lower, and their status entirely different from that of the regular factory inspectors.

In Prussia, France, and Switzerland there are as yet no such inspectors, although the pressure on the Government from labor organizations and the Social Democratic and radical political parties is very great. In some of the German States a few inspectors from the laboring class have already been appointed. In Austria there are two workingmen inspectors for special functions, and there are also a few in Belgium.

INSUFFICIENT NUMBER OF INSPECTORS.

Outside of Prussia, there is hardly a country in which there is not much complaint in parliament, in the press, at labor meetings, and in the discussions of social workers over the insufficient number of factory inspectors. While this complaint is heard over and over again, practically in every country, no criterion as yet exists for determining how many inspectors are needed for the task imposed upon them.

The reason for this is evident when it is considered that there is practically no criterion for judging the efficiency of the work of the factory department. Neither the total number of inspections made

by a factory department nor the average number of inspections made by each inspector, nor the total number of industrial establishments in the country can be taken as a proper criterion, because of the diversity and multiplicity of factors with which inspectors have to deal. Among these are the extent of territory, scope and variety of functions, amount of clerical work, character of supervision, number of agencies intrusted with inspection work, size of establishment, number of workers it contains, character of establishment, personnel of inspectors, and a great many other factors too numerous to mention.

Taking into consideration, however, the large number of inspectors in Germany, who are assisted by a large number of inspectors from the insurance associations and augmented by the police, also the large number in England where the local health authorities are, or ought to be, of great assistance to the factory inspectors, or in Switzerland where the Federal inspectors are so greatly assisted by the cantonal authorities, one must conclude that, as far as the number of inspectors is concerned, France, Austria, and Belgium are much below the standard—a fact which is publicly admitted in those countries.

FACTORY INSPECTION A PROFESSION.

In all the European countries visited, factory inspection is regarded as a special vocation and profession just as the professions of law, medicine, engineering, or State service. Factory inspection is an integral part of the bureaucratic régime, and is considered a life profession by those who embrace it. Those who enter this profession are hardly ever younger than 25 years of age. (In England the age limit is 30 years.) They go through a very rigid and arduous preparatory course, and when they become inspectors they remain such during their whole life of service. In this, as well as in other professions, there is no place for the very young and unprepared or for the old or those who have failed in other walks of life.

SELECTION AND NOMINATION OF CANDIDATES.

In all countries the personality of the candidate plays a most important rôle, apart from scientific education, technical training, and other requirements. The appointing powers in all countries not only select those who have passed certain tests and examinations, but also determine entrance to those tests. This system of nomination and appointment serves to exclude a large number of undesirable candidates, even those of superior education and technical training. It does not necessarily exclude appointment by means of political influence; practically, however, such appointments are hardly known in England and on the Continent.

In England, candidates are not allowed to compete in the examination for the position of inspector unless they are nominated by the Home Secretary. Such nomination is made after a thorough investigation of the character and standing of the candidate by the chief inspector or his deputies, and by personal interview with the candidate.

In Belgium, the appointments are made outright without any examination.

In Germany, the minister approves the name of the candidate before he is allowed to compete.

In Austria, the committee in charge of selection has full control of this work and is able to exclude all undesirable persons.

This preliminary selective process, with the subsequent scientific tests and technical examinations, results in assuring not only persons with high technical training, but also persons of high character and social standing.

TECHNICAL EXPERIENCE AND TRAINING OF CANDIDATES.

The principles as well as the methods of selecting candidates for inspectorial positions differ somewhat in the several countries. Prussia and most German States demand high-grade special technical training; and practically no one can enter the list of candidates who has not had previous theoretical technical training, a diploma in engineering, and some practical technical experience. The German inspectors are thus the most highly technically trained men in inspection work in Europe.

England on the other hand does not require all of its inspectors to be technically trained men. There are a number of engineers, electricians, mechanics, etc., among the inspectors; but the basis of selection is more educational and it might be said social, and ethical rather than strictly technical and scientific.

The same applies to French inspectors. Here also the inspectors are not all technically trained men, although the examinations are more technical than in England; and the technical branches are the most important part in the competitive examination. There are, however, a number of inspectors who are not engineers or mechanics and who have had no experience or training in mechanical trades.

In Austria most of the inspectors are representatives of the three technical classes, namely, mechanics, chemists, and electricians, although there are some inspectors who are not so technically trained.

In Belgium there is no examination, but simply a selection of candidates by the minister. Nevertheless, the persons appointed are usually technically trained men (engineers) or are taken from high-grade social workers, or are old mechanics from the working class.

In Switzerland the number of inspectors is so small and the intellectual proletariat so large that there is no dearth in technically trained men; and practically all inspectors are engineers, electricians, chemists, or physicians.

The most rigid examinations and tests are given in Prussia, Saxony, and France. These are the only countries in which there are specially prescribed tests and thorough technical examinations of candidates for inspectorial positions.

In the other countries the requirements as to tests and examinations are rather vague, and the power is centered in the appointive and selective committees.

The form of organization of the inspectorial departments and the division and specialization of functions within the department determine largely the character of the inspectors and the methods of their selection.

Thus the decentralization of factory inspection in Germany and the absence of division of functions among the inspectors explain the need for highly technically trained persons for inspectors. Where there is a strictly centralized government with the responsibility of the work of inspectors resting mainly upon the superiors, the ordinary inspector need not be a technically trained person, nor is there need of rigid standards of sanitation and safety. There inspectors are simply persons who enforce the law and there is not so great a need for judgment in technical matters. The German inspector, however, is the "master of all he surveys." He has no superiors over him; he is obliged to use his own judgment in all matters pertaining to the protection of workers; he must also be master of all branches of industrial hygiene; hence the necessity for such a person to undergo a rigid scientific and technical education, and to be a man of tact, who has gone through a long and arduous training for his position.

HIGH QUALIFICATIONS OF EUROPEAN INSPECTORS.

Americans are often astonished at the ease with which continental Governments are enabled to obtain for their inspectorial service persons of so high a social grade and of so great educational and technical standing, especially for the small compensation that most of these inspectors receive.

One is in constant wonder how, for instance, Prussia, or Saxony or other German States, can expect a man who is a graduate of a gymnasium, a graduate of a technical school or college, possessor of a diploma in engineering, electricity, or chemistry, one who has passed two rigid tests and an examination in social, political, and economic sciences, and has had two years of practical training in a large industrial plant, to become a candidate for inspectorial service,

and be willing to work in a department two years without pay and undergo two or three additional severe tests and examinations before he enters the service.

Upon expressing these sentiments to some of the chief inspectors in Germany the author was told that no more is required from the factory inspector than from candidates who desire to enter other positions in the State service. He was informed that lawyers need sometimes one or two years more before they obtain the same standing as industrial inspectors; that physicians after their graduation and hospital service are required to pass an ordeal sometimes more severe than factory inspectors; that practically all the State officials are compelled and are willing to undergo all the hardships in order to get into the State service. Herein is perhaps the solution of the problem. A position in the State service is a high desideratum in all European countries; it is regarded with much devotion and deep respect; it is the ideal of the youth of the country; and all persons after having gone through the middle and higher grades of educational establishments vie with one another in their efforts to enter the ranks of State officials and the series of bureaucratic departments.

It is only thus that it can be explained why the son of a high public official of Belgium—a man who is able to run his own motor car during his inspections, a man with a diploma in mechanical engineering, and one who could probably make a success in the industrial world of Belgium, due to his wealth and standing—prefers the career of a factory inspector. The same condition applies to other countries. Even in England, where the salary of inspectors is the highest in Europe, a number of persons coming from the wealthy classes enter the service for the same reason.

RESULT OF APPOINTING HIGHLY QUALIFIED INSPECTORS.

What are the actual results to the country of obtaining so high a class of inspectors?

In the first place, inspectors who have gone through such a long and arduous preparation regard their vocation as a life profession, and are unlikely to commit those errors which are so often a disgrace to the inspectorial force in municipal departments and State service in the United States. In the second place, a long preparation is of service in developing their tact, in teaching them the use of diplomacy in handling employers and employees, and in preparing them for the duties of responsible district inspectors.

Perhaps the most important result of the high character of the personnel is the respect which they command from employers, manufacturers, and technical managers of industrial plants. There is not, and can not be, any of the contempt which is so often met with in the relations of owners and technical managers toward the green and

inexperienced factory inspectors in some of our States. The employers and their managers know that these inspectors are specialists in their line and that they are thoroughly familiar with the industrial processes; hence their respect for the inspectors and their willingness to abide by their advice and follow their requirements.

Another result is the respect and confidence of the workers themselves toward the inspectors. They realize their impartiality and their desire to be fair to all sides.

Within the department a result of the high grade of the personnel is the comradeship among the inspectors themselves and the respect of one inspector for another, no matter what the position may be. Where the chief supervisors and higher grades of inspectors are taken by regular promotion from the lower ranks and not from the outside, amicable relations and mutual respect usually exist between the different grades of inspectors. There it is impossible to meet that bullyragging which is sometimes found in our country, when an ignorant, untrained, inexperienced man is put at the head of a department, and knows that his only superiority over his men consists in his temporary position and emoluments.

PROMOTION, TENURE, AND PENSION.

The methods of promotion and the security of tenure of office, as well as the existence of a pension system, play an important rôle in the ease with which high-grade inspectors are obtained by European countries. Merit, competence, and length of service are the only bases for promotion. An inspector, upon entering the service, knows exactly the steps of promotion he is likely to pass; he also knows that this promotion depends on his own ability, proper performance of duties, and length of service.

The inspector is also secure in his tenure of office during good behavior. He expects to remain and does remain in the service practically all his active life. He knows that he is secure in case of sickness or disability, and when old age comes is sure of his pension during the rest of his life.

Here, perhaps, is the explanation of the low compensation that factory and industrial inspectors receive in all European countries except England. England is the only country where the salaries of inspectors are considerable, and in fact higher on the average than those in the United States. In all other countries the inspectors receive what may be regarded in this country as a miserly compensation. The 200 marks (\$47.60) a month that a German inspector receives during the first few years of his service, the same number of francs a French inspector gets, and practically the same pay that all other inspectors receive, seem to us so small that one wonders how persons of the character described may be obtained for such low

salaries. Of course, the lower cost of living in the countries mentioned must be taken into consideration as well as the overcrowding of the intellectual professions and the great competition for positions in the State service.

LACK OF STANDARDS.

A study of the theory and practice of factory legislation and inspection abroad discloses the surprising evidence that there is as yet little scientific standardization of safety and sanitation in Europe, and that the industrial codes and factory laws do not as yet contain exact standards for the guidance of the inspectors and for the use of employers and manufacturers.

In some countries, notably in Germany, this absence of standardization is extreme; the only guide for the inspectors and owners of establishments being the general provisions of article 120 of the Industrial Code, stating simply that the owner must at his own expense provide such appliances, etc., as will safeguard the health, life, and morals of his workers. There is no explanation as to what is meant by appliances or by health and morals of the workers; and each district inspector may and does interpret this paragraph according to his own understanding and the needs of special industries and establishments in the district under his control. There are no definite rules assuring uniformity of action among inspectors; and it is due only to the high character of inspectors, to their special technical training, and to the general progress of industrial hygiene in Germany that a large measure of protection is given to the workers in spite of the indefinite standards.

In England there is no complete scientific standardization of sanitation and safety, although lately an attempt has been made to introduce special rules and regulations by administrative orders into dangerous trades, and to make such rules for other industries after conferences with representatives of employers and employees in these industries.

In Austria there is a more definite interpretation of article 74 of the Industrial Code, and there is some standardization of its provisions as far as they relate to sanitation and safety; and especially in so far as these relate to the authorization of new establishments requiring licenses.

The French standards are as yet incomplete and not applicable to all industries alike, and they have been issued only for specially dangerous trades.

The same is true in Belgium where the provisions for dangerous trades only are well standardized.

In reference to the absence of scientific standards in Germany, it may be added, however, that the German insurance associations, of

which there are at present 66 groups, have attempted to formulate standards as to safety and accident prevention in their industries; and that rules, regulations, and definite standards exist in a large number of industries.

METHODS OF INSPECTION.

It is interesting to note that no new standards are set of the methods of factory inspection in European countries. It is noticeable, moreover, that inspection with a view to detecting violations and contraventions of the factory law is still the principal method pursued by most inspectors in different countries.

In England detection of violations of the child-labor law, of the Sunday law, of "time cribbing," of nightwork, etc., is almost wholly given over to the lower grade of inspectors—those coming from the working class—while the higher grades of inspectors are limiting their activities to general inspection, proper installation of safety devices, and general preventive work.

In Germany inspectors are entirely free from the work of prosecuting violations, this being left to the police, and the ordinary inspectors endeavor to maintain amicable relations with the employers and to accomplish their work by educational means.

The same may be said of the Austrian system of factory inspection. There great stress is laid by the inspectors on their work of licensing new establishments and on the examination of these applications for authorization. German as well as Austrian inspectors express their opinion that if new plants are well established and properly provided with all possible safeguards, future inspection in these establishments should not be necessary at all. They claim that if this is properly done, that within a certain number of years the majority of the industrial establishments will be in a condition which will require very little attention on the part of the inspectorial department. The endeavor of the inspector is to start the industrial plant right from the first, to imbue the owner with the idea that every possible precaution should be taken during the installation of his plant, that every machine bought should have its proper safeguards, that every device should be used for prevention of accidents, and that a general and local mechanical ventilating apparatus should be installed. The inspectors have a complete record of such plants authorized within the last few years, and their work of inspection in these plants is therefore much lightened.

France and Belgium also have a system of authorization and licensing of dangerous trades establishments; but the number of inspectors is so small in proportion to the establishments that neither this authorization nor the subsequent inspection is thorough or satisfactory.

Apart from the above general considerations, nothing new was noticed in the methods of inspection in vogue in the different countries, and very little difference in the methods of the inspectors.

The general routine procedure is about the same in all countries. An inspector usually begins by announcing his authority upon entering the plant, then, accompanied by a representative of the firm, examines the books, registers, etc., verifying by general examination the personnel of the workers with the registers and books, and then proceeds to an inspection of the sanitation and machinery of the plant.

The methods of taking notes and keeping records differ very much. Only in one or two countries—and in these not generally—is a card system used for inspection or for keeping records. Most inspectors note only violations. The general impression of the author is that in the matter of keeping records of inspections, violations, etc., most of the European countries are much behind some of the progressive inspectorial departments of certain American States.

CONCLUSIONS.

In summarizing the general impressions gathered from the four months' investigation of factory inspection in the six countries visited the question naturally arises, what are the most important inferences to be drawn from the study and investigation, and what are the lessons learned which may be of interest and benefit to students of this problem in our own country?

Is there anything special in the theory or practice of factory inspection abroad, either in the form of organization, or in the specialization of functions, or in the standards set for safety and sanitation, or in the methods of inspection, that is new, specially distinctive, or much superior to the practices among the factory inspection departments in the United States? The author does not believe there is.

In some of our best organized factory-inspection departments in several States we find a form of organization and a functional specialization that is certainly not behind the best examples of European inspection departments. Indeed, some of our new industrial commissions have certain points of superiority over European practices. We also find factory-inspection departments in some of the States that have of late years made a serious attempt to adopt scientific standards, and have resorted to expert industrial advice and to trade and industrial conferences, methods which are destined to equal, if not surpass, the practices and methods used in other countries.

There is also no great difference in the method of inspection used here, and there is already noticeable a tendency for registration, and in some cases for licensing of large groups of industries and certain industrial establishments.

Wherein, then, is the superiority of European inspection over that of the United States, if there is such superiority?

The author's opinion is that such superiority does exist, but it exists only in "the higher grade and character of the inspectorial force."

In this respect Europe is far in advance of the United States. We have no such inspectors as a class. Here and there, in one State or another, there may be found one or more excellent examples of efficient and trained factory inspectors; but these are isolated cases. The rank and file of European inspectors are far above the rank and file of our own inspectors.

The reasons for this anomalous situation are found in the body of the report as well as in this introduction. They may be summed up as follows: (1) Factory inspection in Europe is a profession, a vocation, and is regarded as a life work; (2) factory inspectors in Europe must go through a long preliminary preparation, must have a scientific education and technical training; (3) merit, length of service, and competence are the only bases for promotion from one grade to another; (4) superiors, chiefs, and heads of the service are promoted from the ranks only for merit, experience, length of service, and competence; (5) the tenure of office is secure, promotion certain, treatment liberal, and a pension is given for long service and old age.

GREAT BRITAIN.

HISTORICAL REVIEW.

The year 1802 marked a new epoch in the history of legislation. It was the birth year of labor legislation.

During the latter half of the eighteenth century the application of steam power to machinery gave rise to the modern factory system, and the inevitable baneful influences which were a necessary consequence of the changed modes of life and labor became apparent. Some of the misery attending the development of factories was graphically shown in the testimony before the Manchester Commission of 1796. Partly in consequence of the disclosures of that commission and partly as a result of agitation, the Government was compelled to frame and pass its first labor law—the “Health and morals of apprentices act”—in 1802.

This auspicious beginning was gradually followed by a succession of other labor laws, nearly 40 of which were enacted during the nineteenth century. Some of the most important of these successive laws are named here and briefly reviewed:

1802—The health and morals of apprentices act.

1833—An act to regulate the labor of children and young persons in the mills and factories of the United Kingdom.

1844—An act to amend the laws relating to labor in factories.

1847—An act to limit the hours of labor of young persons and females in factories.

1864—The factory acts extension act.

1867—The factory acts extension act.

1871—An act to amend the acts relating to factories and workshops.

1878—An act to consolidate and amend the law relating to factories and workshops.

1901—Factory and workshop consolidation act.

ACTS OF 1802, 1819, 1825, 1831.

The act of 1802 applied only to cotton factories in which not less than 3 apprentices or 20 other persons were at work and had for its principal provisions the prohibition of work between the hours of 9 p. m. and 6 a. m.; the restriction of daily work to 12 hours; provisions for sufficient clothing, for the separation of the sexes, the school instruction of apprentices during the 12 hours of daily work for the first four years of their apprenticeship, and for religious instruction on Sundays. The only sanitary provision was that calling for the whitewashing of factories and mills twice a year.

The act of 1819, which applied to the establishments for the preparation and spinning of cotton, contained the first distinct prohibition of child labor. It forbade the work of children under 9 years, the work of children between 9 and 16 for more than 12 hours daily and between 8 p. m. and 5 a. m. and provided for a 9-hour day on Saturday between 5 a. m. and 4.30 p. m. Provision was made for 1½ hours for meals between the hours of 11 a. m. and 4 p. m. Numerous exceptions were made for mills driven by water power.

The act of 1825, which applied to the same class of factories, introduced few changes, but required the whitewashing of factories only once a year instead of twice as in the act of 1802, and required an abstract of the law to be hung up in a conspicuous place in every mill.

The act of 1831 embraced all cotton mills and created three classes of protected persons: (1) Children under 9, who were prohibited from work; (2) young persons from 9 to 18; and (3) young persons from 18 to 21. This act prohibited the nightwork of all young persons under 21. The hours of labor of children and young persons remained limited to 12 hours daily and 69 hours weekly.

COMMISSIONS OF 1831 AND 1833.

The first three decades of the nineteenth century were periods of remarkable industrial growth. Invention followed invention. The application of steam to manufacture revolutionized the old methods of production and displaced domestic production and handicraft, compelling the removal of industries from scattered villages to cities. In the struggle of industrial competition, conditions in factories and mills became intolerable. Mills and factories worked day and night, fed by the labor of women and of children, some of them six years of age and younger, and the poverty, wretchedness, and distress of the laboring class increased. He who wishes to get a glimpse of the condition of the laboring population of that period needs only to read the reports of the commissions of 1816,¹ 1831,² and 1833.³

In 1831, following a series of letters by Richard Oastler on the subject of "Yorkshire Slavery," Michael T. Sadler introduced his 10-hour bill. In his speech Sadler vividly described the condition of the laboring classes, the excessive hours, overheated atmosphere, and shocking cruelties to which the children were subjected.⁴ As a

¹ Report of the Minutes of Evidence taken before the Select Committee on the State of the Children employed in the Manufactories of the United Kingdom from April 25, 1816, to June 18, 1816.

² Report from the Committee on the Bill to Regulate the Labor of Children in the Mills and Factories of the United Kingdom, with the Minutes of Evidence, Appendix and Index, March 16, 1832, to August 8, 1832.

³ Report of the Factories Inquiry Commission—Supplementary Report of the Central Board of H. M. Commissioners appointed to collect Information in the Manufacturing Districts, as to the Employment of Children in Factories, and as to the Propriety and Means of Curtailing the Hours of their Labor. Vols. I and II, 1834.

⁴ A History of Factory Legislation, by B. L. Hutchins and A. Harrison, Westminster, 1903, p. 33.

result of Sadler's agitation, a parliamentary committee was appointed with Sadler as chairman.

Although the manufacturers and mill owners were the ones who insisted upon the appointment of the parliamentary committee of which Sadler was the head, the report of the Sadler committee was too radical for them, and after Sadler's sudden death they insisted upon the appointment of a commission not so friendly to the laboring class, which submitted its findings in 1833.

Although the members of this later commission were practically the appointees of the manufacturing interests, and although some of the commissioners were inimical to further labor legislation,¹ the general consensus of opinion of the commissioners, and of Parliament, after hearing their report, was for the enactment of new labor legislation. Althorp's act of August 29, 1833, was the result of the great pressure of public opinion, to which the Government was forced to respond in spite of the opposition of manufacturers and in spite of the doctrines of the political economists of that period.

The act of 1833 still applied to textile factories only. It prohibited employment of children under 9 years, restricted the work of children between 9 and 13 to 9 hours daily and 40 hours weekly, provided for their school instruction 2 hours daily, prohibited work of young persons between 13 and 18 from 8.30 p. m. to 5.30 a. m., and limited their work to 12 hours daily and 69 hours weekly; made provision for 1½ hours mealtime, and continued the old provision for the white-washing of walls in factories.

The act of 1833 is no less epoch-making in the history of the administration of labor laws than the act of 1802 in the history of labor legislation itself. By this act the first attempt was made to secure the enforcement of labor laws by the creation of a hitherto unknown state institution for administration.

With the passage of the act of 1833 factory legislation in England passed out of the embryonic stage and entered the period of administration and enforcement. The political economists of that time as well as the representatives of the manufacturing interests were certain that this act would insure the ruin of English industry and disaster to English commerce. When, however, the experience of the first 10 years of the administration of this act had belied the dismal prophecies of its detractors and had proved the fallacy of the reason-

¹ In the report of this commission, Vol. I, p. 226, E. Carleton Tufnell, one of the subcommittee, is quoted as follows: The conclusion to which I arrive is, that the tales of factory cruelties are untrue, and if they were true the factory bill of Lord Ashley could do no more than increase the evil; and that all factory bills, from their very nature, can not but have the same effect. The true interests of humanity, of justice, and of morality, require that not only no new factory bill should be passed, but that every former one be instantly repealed. If the parents are inhuman enough to overwork their children, Parliament can not remedy the evil by setting itself up as the universal guardian of the offspring of the poor. The cause of the grievance obviously lies in the bad moral character of the parents; and on raising that character, which factory bills more effectually debase, depends the only chance of cure. I perceive that my opinions are different from those of some of my colleagues."

ing of its opponents; when the growing experience of the factory inspectors themselves and the agitation among the laboring classes had convinced the Government not only of the wisdom of the act of 1833 but also of the need for the further extension of the law, the act of 1844 was passed by Parliament, marking a third epoch in the history of factory legislation.

ACT OF 1844.

This act was applicable to all textile factories with very few exceptions. The persons protected by this act belonged to four classes instead of three as in the former act, but a compromise was made with the employers by reducing the age of children whose work was entirely prohibited to 8 instead of 9 as formerly. The provisions for children between 8 and 13 remained much the same as before except that 3 hours daily instead of 2 were allowed for school instruction, that the work of young persons between 13 and 18 was limited to 12 hours daily and 69 hours weekly. A new class of persons was added to those protected, namely, women, who were put in the same class as young persons between 13 and 18 and whose hours of labor were limited to 12 hours daily and 69 hours weekly. The 12-hour workday began from the time any protected persons started work in the morning. Meal hours remained the same, but no protected person was allowed to remain in the factory during the meal hour and all meal hours had to be taken at the same time. The hours were regulated by public clocks.

The first attempt to provide against accidents was made by prohibiting the cleaning of machinery in motion by children or young persons, by requiring the fencing of flywheels, and the guarding of dangerous parts of the machinery. The fines for violations of the law were to go to the injured persons. Provision was made to protect the workers from excessive dampness in the process of wet spinning.

The work of children between 8 and 13 was limited to one period of 6½ or 7 hours either before 1 p. m. or after 1 p. m. Nightwork was prohibited, as before, between the hours of 8.30 p. m. and 5.30 a. m.

The one sanitary requirement was still further reduced, white-washing of factory walls being made obligatory only once in 14 months and painting once in 7 years.

PERIOD BETWEEN ACTS OF 1844 AND 1878.

The period between the acts of 1844 and 1878 was marked by two main tendencies in the enactments for the protection of workers. On the one hand, it was sought to introduce a normal workday by still further limiting the hours of children, young persons, and women, and by establishing a 10-hour workday. On the other hand, the textile manufacturers, having become convinced that

there was very little probability of the repeal of the obnoxious factory laws, began an agitation for an extension of the acts to other industries, claiming that the acts handicapped them unfairly in competition with manufacturers in other industries.

The act of 1847, known as the 10-hour act, provided that no female or young person should work more than 11 hours in one day or 63 hours in one week after July 1, 1847, and 10 hours daily and 58 hours weekly after July 1, 1848. The normal workday act of 1850 provided a 12-hour period between 7 a. m. and 7 p. m. with 1½ hours for meals, and a 10-hour normal day's work. This act was amended in 1853.

Meanwhile, by concerted action, the factory owners, joining forces and creating the National Factory Owners' Association, which counted a great many members and represented a vast combination of capital, began an agitation against not only the enforcement of the old laws by the factory inspectors, and especially those requiring the fencing of horizontal shafts over 7 feet high, but also against all factory acts. Indeed, in their partisan agitation, they even advocated the total repeal of all the factory acts. The act of 1856 was partly a result of this agitation of the National Association of Factory Owners. It modified all the general provisions for safeguarding machinery, nullifying much of the work of the factory inspectors, and marking a retrogressive step in the general trend of labor legislation.

With the acts of 1853 and 1856, labor legislation, so far as textiles were concerned, came to a standstill and remained at practically the same point for the next 20 years or more. In the meanwhile the main progress in factory legislation was made in the extension of the existing regulations to other industries. This began with the extension of the law to printing, bleaching, and dyeing factories in 1845 and 1847, to lace manufacture in 1861, and, in 1864, to the production of alkali and to many other industries enumerated below.

RÔLE OF THE VARIOUS COMMISSIONS OF INQUIRY, ETC.

In all labor legislation in England, a most important part was played by the various investigating commissions appointed from time to time by Parliament. As has already been seen, many provisions of the act of 1833 owed their inception to the commissions of 1816, 1831, and 1833. The act of 1844 was in great part due to the work and reports of the "Select Committee appointed to inquire into the operation of the act for the Regulation of Mills and Factories" (1840). The "Children's Employment Commission" (1843-1845) played an important rôle in the extension of factory legislation to other industries, which extension was carried still further by the "Commissioners on Bleach and Dye Works (1854-55); the "Select Committee of the

House of Commons on Bleach and Dye Works" (1857-58); the "Commission on the State of Children Employed in Lace Manufacture" (1861); and finally by the six successive reports of the "Commission on the Employment of Children and Young Persons in Trades and Manufactures not already regulated by law" (1862-1867). Further extensions were due to several minor committees, and, finally, as a result of the labors of the "Commissioners Appointed to Inquire into the Working of the Factory and Workshop Acts, with a view to their consolidation and amendment" (1876), the consolidating act of 1878 was passed.

The main feature of the act of 1864 is the widening of the definition of "factory" so as to include "any place where persons work for hire" and the extension of the factory acts to potteries, to the manufacture of lucifer matches, of percussion caps and cartridges, of hosiery and lace, to the employments of paper staining, fustian cutting, etc. Provision was made in 1864 for the prevention of the dangerous effects of work in alkali and bleaching establishments by the passage of the alkali act.

By the act of 1867 the factory acts were extended to workshops, there being still at the time an arbitrary distinction between factory and workshop, based upon the number of workers in the establishment. It was early seen that if the factories were under legislative control and the workshops remained without supervision, the result would probably be unfair competition of the small shops with the large ones and an inevitable increase of the workshops at the expense of the factories. Therefore, in 1867 workshops were included in the legislative provisions for control. As it was impossible, however, for the factory inspection department, with the small number of inspectors it had at that time, to take care of workshops as well as factories, the enforcement of the workshop act was given over to the local sanitary authorities.

The same act of 1867 extended the factory laws to blast furnaces, copper, iron and brass forges, foundries, tin plate, steel, paper, glass, gutta percha and tobacco manufacture, and to printing, on all premises where 50 or more persons were employed. The act also contained a large number of complicated exceptions.

In 1871, by the act of that year, the local authorities having failed to administer the workshop act successfully, the jurisdiction over workshops was given to the factory department.

In the early seventies the mass of labor legislation consisted of some 15 various acts passed since 1802. The legislation relating to factories and workshops was highly complicated, partly conflicting, full of exemptions, exceptions, etc. The definitions of textile and nontextile factories, the difference between factories and workshops were based upon arbitrary provisions, and the whole mass of labor

legislation was in such a shape that its enforcement could not be uniform nor successful without a proper codification of all the laws. The commission of 1875 was the last of the great commissions on factory acts, and the most important part of its deliberations is the consolidating act of 1878. By this consolidating act the whole factory law was systematized, and adequate provisions made for proper administration and enforcement. By this act the definition of factory and workshop was first established and based, not upon the number of persons in the establishment but upon the fact of the presence of machinery driven by motive power.

The history of labor legislation since 1878 embraces, on the one hand, the continuation of the policy of the extension of state protection to all persons engaged in gainful occupations and the extension of the factory acts to all industries and trades, no matter where these are located or housed; and, on the other hand, it presents two new tendencies not fully embraced in former legislation. These are (1) the special protection of workers in so-called dangerous trades; and (2) the protective extension of state interference into home and domestic work. The power, which has been given by the factory act to the Home Secretary to make special regulations for dangerous trades, has been utilized, so that now a large number of special industries and industrial branches have been brought under special rules and regulations. The requirement of a list of outworkers in many industries and the greater supervision of the sanitary conditions under which home work is done have brought about a greater protection of these workers.

SCOPE OF THE PRESENT FACTORY AND WORKSHOP ACTS.¹

The legislative provisions in the factory and workshop acts may be divided into two main groups—(1) those relating to sanitary conditions of factories and workshops and safety of the workpeople; (2) those relating to the conditions of employment for children, young persons, and women.

APPLICATION OF THE LAW AND DEFINITIONS.

The factory and workshop acts do not apply to mines and quarries deeper than 20 feet. These are under the control of the central Government and under a separate bureau known as the Bureau of Inspection of Mines. Railroads are also not included in the factory and workshop acts; the administration of the laws applied to them is under the control of the Board of Trade. The factory and workshop acts apply fully to all factories and workshops, and to a certain limited extent to (1) docks, wharves, quays, and warehouses; (2) buildings in course of construction and repair; and (3) railway lines and sidings used in connection with factories and workshops.

¹ Most of the information presented under this head is drawn from "The Law Relating to Factories and Workshops," Abraham and Davies, Sixth Edition, London, 1908, pp. 9-14 and 377-457.

The application of the law concerning industrial conditions as well as protected persons differs with the various kinds of establishments which are under the control of the factory inspection department. Outside of the three minor groups already indicated, all industrial establishments are divided into two main groups—factories and workshops—the definitions of which are based principally upon the fact of the presence of machinery driven by steam, water, or other mechanical power. Although the presence of machinery driven by mechanical power is the main distinction between factory and workshop, there is, however, a list of 20 classes of works, 18 of which are defined to be factories and not workshops, whether mechanical power is used in them or not. Besides this general division, there are several minor subdivisions:

Factories.—(1) Textile, (2) nontextile, (3) domestic, (4) tenement.

Workshops.—(1) Domestic, (2) adult, (3) male adult, (4) tenement.

A textile factory is one where mechanical power is used to work machinery employed in preparing, manufacturing, or finishing, or in any process incident to the manufacture of cotton, wool, hair, silk, flax, hemp, jute and tow, china grass, cocoanut fiber, or other like material. Print works, bleaching and dyeing works, lace warehouses, paper mills, flax scutch mills, ropewalks, and hat works are not regarded as textile factories.

Nontextile factories are generally premises other than textile factories, where any articles are made, altered, repaired, ornamented, finished, or adapted for sale by means of manual labor exercised for gain, if mechanical power is used on the premises.

A domestic factory means a private house, room, or place which, though used as a dwelling, is by reason of the work done there a factory or workshop, as the case may be, in which either steam, water, or other mechanical power is used in aid of the manufacturing process carried on, and in which the only persons employed are members of the same family and actually living on the premises.

A tenement factory is a building which contains several factories separately occupied.

Workshops are defined generally as places, not being factories, where any articles are made, altered, repaired, ornamented, finished, or adapted for sale by means of manual labor exercised for gain. There is a list of 11 classes of works, which are nontextile factories if mechanical power is used there; but which are defined to be workshops if no mechanical power is used.

There are four special classes of workshops which are for certain purposes distinguished from ordinary workshops.

Domestic workshops.—Various private houses, places, or rooms where no power is used, in which the only persons employed are members of the same family actually living there.

Adult workshops.—Workshops conducted on the principle of not employing children or young persons, but employing women.

Male adult workshops.—Where no child, young person, or woman is employed.

Tenement workshops.—Places where, by arrangement with the owner or occupier, two or more persons carry on work, which, if they were in the employment of either, would constitute the place a workshop.

INDUSTRIAL CONDITIONS.

The factory and workshop acts contain numerous provisions as to the condition under which workers are allowed to continue their work. These industrial conditions, which are carefully regulated, are the following: The construction of the factories and workshops, fire hazards and protection, safeguarding of machinery and prevention of accidents, ventilation, air space, temperature and humidity, sanitary conveniences and sanitary conditions.

PROTECTED PERSONS.

The persons protected by the factory and workshop acts are divided into several groups:

Children under 12, who are prohibited from work.

Children between 12 and 13.

Children between 13 and 14.

Young persons between 14 and 16.

Young persons between 16 and 18.

Women.

Adults.

The protection given in the law relates to the hours of labor, which vary according to the age and sex of the protected person. They also vary with the kind of work place, the kind of industry, and the kind of industrial process, as do meal hours, weekly periods of employment, holidays, etc.

In all the numerous provisions about industrial conditions and protected persons, there are a number of exceptions and exemptions, some of them stated in the law, others subject to special orders, rules, and regulations by the Home Secretary.

DANGEROUS TRADES AND INDUSTRIES.

Aside from these general provisions applying to factories and workshops, there are a number of special trades and industries which are regarded as dangerous, and for which the law has special provisions, rules, and regulations; also for which it is provided that the Home Secretary may issue special orders, rules, and regulations which when issued under certain conditions become parts of the factory act, and have the force of law. There are also special provisions relating to laundries and bakehouses.

The following industries are those which as dangerous trades are subject to special regulations, issued by the Home Secretary, over and above the ordinary provisions of the act:

Manufacture and decoration of earthenware and china.

Making transfers for earthenware and china.

The manufacturing of patent fuel with pitch.

Quarries.

The coating of metal articles with a mixture of lead and tin or lead alone.

The extraction of arsenic.

Shipbuilding.

White lead works.

Red and orange lead works.

Yellow lead works.

Smelting of materials containing lead, the manufacture of red or orange lead, or of flaked litharge.

Mixing and casting of brass and of certain other alloys.

Handling of imported hides and skins.

Manufacture of bichromate, or chromate of potassium, or sodium.

Vulcanizing of india rubber by means of bisulphide of carbon.

Chemical works.

Bottling of aerated water.

Manufacture of felt hats, where any inflammable solvent is used.

File cutting by hand.

Manufacture of electric accumulators.

Loading, unloading, etc., of goods at docks, wharves, and quays.

Spinning by self-acting mules.

Sorting, etc., wool, goat hair, and camel hair, and processes incidental thereto.

Spinning and weaving of flax and tow, and the processes incidental thereto.

Use of locomotives, cars, etc., on tracks and sidings in or at factories or workshops.

Manufacture of paints and colors.

Heading of yarn dyed by means of a lead compound.

Spinning and weaving of hemp or jute, or hemp or jute tow.

Manufacture of nitro and amido derivatives of benzene and the manufacture of explosives with use of dinitrobenzol or dinitrotoluol.

Bronzing with dry metallic powders.

Generation, transformation, distribution, or use of electricity.

Enameling, vitreous, of metal or glass.

Grinding of metals and racing of grindstones.

The use of horsehair from China, Siberia, or Russia.

This brief review of the general scope of the factory and workshop acts of England has been given not so much to furnish a résumé of the actual provisions of the law, as to indicate the complexity of the

law, the wide range covered by it, and the multiplicity of exceptions and exemptions, and thus to exhibit the enormous difficulty which the factory inspection department must find in the administration of a law so complex.

HISTORICAL DEVELOPMENT OF ADMINISTRATIVE CONTROL.

Public utterances during the first decades of the nineteenth century, descriptions in the public press, and public documents, as well as evidence given before the commissions of 1816, 1831, and 1833, agree that the provisions of the factory and workshop acts of the first three decades in the nineteenth century were not enforced and remained practically a dead letter. The reasons for this failure in enforcement are not very difficult to see. There was no adequate provision made for their administration or enforcement; such provisions as there were, were vague in meaning and insufficient. The act of 1833 marks an epoch in the history of the administration of labor laws, just as the act of 1802 begins the era of labor legislation in this and other countries.

METHODS OF ENFORCEMENT UP TO 1833.

The methods of enforcement contemplated in the act of 1802 and in the subsequent acts of 1825 and 1831, consisted merely in the provision that the justices of the peace were to appoint annually two visitors in each industrial locality; the visitors, one of whom was to be a clergyman, and the other, one of the justices themselves, were to act without pay. The justices had the right to inflict fines from £2 to £5 (\$9.73 to \$24.33) for violations of the law; and in order to get information from employees or those who worked in the shops, provision was made that informers should receive half of the money from fines. In practice, it became evident that the work of the visitors was merely nominal, that most of them were opposed to the letter as well as to the spirit of the law, that they had to inspect the shops of their own neighbors and friends in the localities in which they lived, that their inspections were perfunctory, and that they often notified their neighbors of their intended visits. It was also proved that there were very few employees who dared to inform against their employers, and that such informers were black-listed by the employers and boycotted by their fellow workers.

In 1815 Peel advocated in his second bill the appointment of proper special officers, also named by the justices, but paid for their work; while in 1819 Robert Owen advocated the appointment of government inspectors, but there seems to have been much opposition on the part of the manufacturers, as well as on the part of the Government itself to the creation of a new institution.

Thus, the improvement of labor conditions by the first factory laws, was at the best, slight; and the evidence before the committee of

1816 and especially before the commissions of 1831 and 1833, bore out the contention that without a special department for the administration of the labor laws, and the appointment of well paid and qualified officers, there could be no enforcement of the acts.

FIRST PROVISIONS FOR FACTORY INSPECTION, 1833.

In 1833, the Government was finally compelled to include in its bill a definite provision for the administration of the labor laws and for the creation of a new department, that of factory inspection. Four inspectors were to be appointed by the Home Secretary, with a salary of £1,000 (\$4,866.50) a year. At the request of the inspectors the Home Secretary could appoint "mill wardens," or as they were later called, superintendents, who were to assist the inspectors in their work and were to be under their jurisdiction. The inspectors had wide powers. They had the right to enter factories and mills during work, could enter schools and all parts of the factory, had the right to prescribe rules and regulations to the employers, determined the forms of certificates and registers to be kept by the employers and employees, gave orders and notices to employers, held hearings, compelled testimony, and interrogated employers and employees. Inspectors could also act as complainants in prosecuting employers for violations of the law, and could even act at times as justices, and impose fines for such violations.

No one in a factory was to claim ignorance of the act and every occupier was to receive a printed abstract of the act. Every factory had to keep a register of protected persons; children and young persons had to present certificates of age issued by physicians and surgeons qualified by a degree from a college and university; children were also to give a certificate of physical fitness; and owners had to prove the school attendance of their child employees through a written certificate from the teacher. Various penalties were fixed for violations of the act, and half of the fines were to be given to informers. The inspectors had the right to take with them into the factory or school any persons needed for assistants; but the superintendents had no right of entry into the factory proper.

The inspectors were to make quarterly reports, to be published semiannually. They were to confer twice a year, and for this purpose had to meet in London and report to the Home Secretary.

THE FIRST INSPECTORS.

In the selection of the first inspectors the Government was fortunate in obtaining the services of very competent and high-class persons, as indeed was the intention of the act, judging from the fact that it gave these inspectors such powers and wide discretion, and set their salary at £1,000 (\$4,866.50), a munificent sum at that time for a State official. It can not, however, be said that the first inspec-

tors were selected from among the advocates of State interference or were very friendly to the factory acts; two of them were members of the commission of 1832 which was rather opposed to the factory acts, and a third was a member of the bar.

The first inspectors were R. J. Saunders, T. Jones Howell, R. Rickards, and M. Musgrave. Mr. Musgrave resigned in a few weeks and Mr. Leonard Horner was appointed in his stead.

The first budget for the factory-inspection department from April, 1834, to March, 1835, provided for the salaries of inspectors and superintendents, £4,250 (\$20,682.63), which with the amount required from the date of appointment to March 31, 1835, £1,959 (\$9,533.47), made a total of £6,209 (\$30,216.10), from which a deduction was made from the pay of one of the inspectors who was receiving a compensation of £500 (\$2,433.25) on abolition of an office formerly held by him, so that the total budget for the 13 months beginning with April, 1834, was £5,709 (\$27,782.85). It is therefore clear that this budget omitted entirely salaries for superintendents, and at first none were appointed.

The whole United Kingdom was divided for the purposes of inspection into four inspectorial districts; the first inspector receiving about 22 eastern and southern counties of England; the second, the middle western counties of England, nearly all of Wales and the southern part of Ireland; the third, the manufacturing counties of York, Lancashire, Chester, half of the counties of Derby and Stafford, and the three northern counties of Wales; the fourth, the four northern counties of England, the whole of Scotland, and the northern part of Ireland. By this division the inspector of the third or Manchester division, in spite of his small territory, received nearly half of all the factories in the United Kingdom. The division was at first as follows:

First district: R. J. Saunders, inspector; 299 factories.

Second district: T. J. Howell, inspector; 495 factories.

Third district: R. Rickards, inspector; 2,785 factories.

Fourth district: Leonard Horner, inspector; 581 factories.

After 1837 the country was redistricted and a more nearly equal number of factories was given to each inspector.

In 1834 there were in England, Scotland, and Ireland altogether 3,094 factories. Of these, 2,642 were in England, 388 in Scotland, and 64 in Ireland.¹

DIFFICULTIES OF ENFORCEMENT.

The first work of the newly appointed inspectors was to undertake a joint tour of inspection throughout the country so as to learn the conditions with which they had to deal. After this tour each returned

¹ Weyer, "Die Englische Fabrikinspektion," p. 58; also Report of Inspectors, 1835.

to his own district and began the attempt to enforce the act of 1834. From the beginning the task proved to be herculean. Among the difficulties to be met were the following: (1) The inexperience of the inspectors and their doubt as to the exact provisions of the law; (2) the lack of safeguards against various evasions of the law; (3) the difficulty of enforcing the provisions against the labor of children and young persons; (4) the inadequate educational provisions, the immense territory to be covered, and the amount of work to be done; (5) the opposition on the part of employers, workers, parents, the public, the magistrates, and the Government itself.

It has already been mentioned that the first inspectors were not ardent supporters of State interference. Respecting the act of 1833, one of the inspectors (R. J. Saunders) writes as follows:¹

* * * I was led to believe that a serious injury was about to be inflicted on all classes engaged in manufacture, * * * and * * * joined my colleagues in July, 1834, in recommending two changes: * * * It was not, however, long before we found that we had been misled in various particulars, and that it was necessary for the interest of the working classes to modify our opinion. * * *

The inspectors were uncertain not only of the wisdom of the law but of the extent of their powers and of the exact intentions of the Government as to enforcing the law. They had no knowledge of industrial conditions and no experience in the administration of the laws, and were therefore handicapped in many ways in their work of inspection and enforcement.

It was only because of the intelligence, honesty, and impartiality of the first inspectors that their work did not suffer too greatly from the conditions under which they had to do it. The future of factory inspection and the success of labor legislation depended upon the work of these pioneers—men who set up such a high standard of inspectorial work that future legislation had to follow in their footsteps and other countries had later to adopt their standards and follow their example.

These inspectors had to deal very tactfully, diplomatically, and leniently with the manufacturers. They endeavored to convince them of the beneficence of the law and to enforce it more by moral suasion than by prosecution. Sometimes they resorted to the publication of the names of flagrant offenders in their reports or in the public press.

At the same time the inspectors were making a profound study of industrial conditions, a study which was extremely beneficial to themselves in changing their previous opinions as to labor conditions and the wisdom of State interference, and also enlightening to the Government, to Parliament, and to the public.

¹ Reports of the Inspectors of Factories, for the half year ending 31st October, 1848, p. 109.

It did not take much time to effect this change in their original views. The inspectors soon found that the dismal prophecies made by the opponents of the acts that English industry was to be ruined by them were not fulfilled and that, as Robert Baker states in one of his reports, "the condition of the persons employed in them [the factories] shows the absolute necessity for supervision, and has strengthened the opinion I formed five-and-thirty years ago, when first beginning to visit factories, that free labor (if it may be so termed) even in a free country, requires the strong arm of the law to protect it from the cupidity and ignorance of parents; * * *."¹

It has been seen that at first there was no provision made in the budget for the appointment of superintendents, but at last, after repeated demands by the inspectors, several were appointed for each inspector though salaries given by the Home Secretary were very small, only £250 (\$1,216.63), which sum was later increased to £350 (\$1,703.28) for those who were not assigned to office work. These superintendents had no right to visit factories and this interfered a great deal with the success of the administration, for it soon appeared that the inspectors themselves had not time to make frequent inspections.

The territory which the inspectors had to cover embraced the whole of the United Kingdom and the work of inspection was therefore very difficult. In 1835, Inspector R. Rickards wrote in his report²—

* * * that neither the superintendents nor the inspectors can have much rest from their labors. The fact is, the former are in constant motion from town to town and from station to station * * *. Their zeal in the performance of their duty is exemplary, and their success has hitherto been great, but the labor imposed on them is still too severe. Nothing, as before observed, can make a factory law really efficient but a constant inspection of the interior of the mills.

In 1839 the four inspectors had 4,438 factories under their control and had only 15 superintendents for the actual work of inspection.

The act of 1834 was thus necessarily inadequate in many of its provisions and there were as yet no safeguards to prevent the evasion of the law or to insure its proper administration. The principal provisions, those relating to the prohibition of the work of children under nine years and the restriction of older children from working too long hours, were made very difficult of enforcement, (1) by the fact that at that time there was not any birth registration in England, and (2) that it was impossible or very difficult to determine the ages of children and their physical fitness as the law required. The sections restricting the hours of labor of older children and young persons were also in great part nullified by the lack of a provision for

¹ Reports of the Inspectors of Factories, for the half year ending 31st October, 1864, p. 34.

² Reports of the Inspectors of Factories, August, 1835, p. 8.

the hours of beginning and closing work. In the absence of compulsory education and of adequate educational institutions in the country, the educational provisions were also very difficult to enforce. Indeed, it can not be said that there existed any educational facilities whatever at that time; the schools attached to some of the factories were farcical; some of them were located in cellars, others were presided over by illiterate schoolmasters who were unable to sign their own names. There was no standard for physical fitness or for the qualifications of the physicians giving certificates. In some factories the certificates were found to have been given by veterinarians, barbers, and similarly unqualified persons; in others, the inspectors found a regular traffic in certificates among the children.

While the inspectors themselves had extraordinary powers, legislative as well as executive, the superintendents, who were supposed to do the real work of inspection, as has been noted, had not even the right of entry to the factories, and were thus very much obstructed in their inspectorial work.

The inspectors had to travel long distances and to transact a large amount of business and correspondence, and to hold conferences with various members of Parliament, officers, and commissioners, and so could devote to inspection only a very small number of days during the year. In a report presented to Parliament in 1840 the inspectors stated that out of 250 to 300 working days during the year they could give to the work of inspection only from 50 to 100 days. The superintendents were supposed to inspect each factory in their districts three times a year, but they had to pay their own expenses and provide their own subsistence while traveling. To save expense they made their visits very brief and hurried, and some of the outlying places were hardly visited at all. In one of the reports it is stated that a superintendent visited 27 mills in one day and traveled 47 miles. The inspectors were forced to draw the attention of the superintendents to this hasty work and to ask them to make their inspections more thorough.

But the greatest difficulty which inspectors had to meet in their administration of the factory acts was the opposition, violent and concerted, of practically everyone with whom they had to deal.

The employers deeply resented the new form of State interference. They regarded industry and manufacture as the bulwark of the country's prosperity and the freedom of trade as something sacred. They were incensed by the temerity of the Government in sending informers and spies into their factories, and in interfering with their inviolable right to do whatever they pleased in their own establishments.

Nor was there much support for the law among the workers themselves. The provision for inspection met with nothing but ridicule.

"It was assumed that as the inspectors were to be appointed by the Government, they would necessarily be mere tools in the hands of the manufacturers."¹

The Leeds Intelligencer, August 10, 1833, thus expressed the popular sentiment:

The inspectorships are a lumbering affair, and will turn out in practice, we suspect, a nullity; their chief recommendation with their projectors is probably the patronage they afford.²

The inspectors could naturally find no support in their work from the parents who trafficked in the work of their children. These parents looked upon the inspectors as enemies who were taking their bread away from them, and who made it impossible for them to hire out their young children to help them or contribute to their idleness.

The inspectors also found very little sympathy among the magistrates, who were loath to impose penalties upon manufacturers living in their own localities. Some of the fines imposed were ridiculously small, and at one time the factory act was called by the public in derision the "sovereign remedy," from the fact that a magistrate imposed no greater fine than one sovereign or pound (\$4.87).

Inspector Horner's report of 1836 says³ that "disregard of the law had been so frequent that it was found necessary to institute no less than 114 prosecutions, * * * and in these prosecutions were laid 504 informations for various offenses." The fines imposed in cases of conviction were very small. Of the 458 convictions, 345 were visited with penalties of 20 shillings (\$4.87) each.⁴

The Government itself was not very strong in its alliance with the inspectors or in its support for their arduous work. The factory act had been passed as a compromise, and its enforcement seemed not to be the intention of the Government. In many of their activities the inspectors were hampered by the Government. This was notably the case in the appointment of certifying surgeons by some inspectors, and also in the failure of the Government to approve rules and regulations issued by the inspectors.

WORK OF THE FIRST INSPECTORS.

In spite of all the difficulties and notwithstanding the opposition from all sides, the work of the first inspectors during the first 10 years of the existence of the department was nothing less than remarkable. After the first general tour of inspection, the first four inspectors began their work of organization and inspection in their respective

¹ A History of Factory Legislation, by B. L. Hutchins and A. Harrison, Westminster, 1893, p. 55.

² Idem., p. 55.

³ Reports of the Inspectors of Factories for the half year ending December 31, 1836, p. 5.

⁴ Idem., p. 6.

districts. They appointed their superintendents and issued special rules and regulations for their guidance. They also printed abstracts of the law and issued special rules and regulations for various establishments under their jurisdiction. They used the press as a medium to let the public and the employers know of the exact provisions of the law. They also provided for special forms, registers, and certificates to be used in the factories. They inspected the educational establishments, whatever they were, supervised the school and educational activities in the factories, examined the children for their educational qualifications, rejected certain schools as inadequate, and even endeavored to establish schools themselves. When they found that the certificates of physical fitness given by the ordinary physicians in the factory localities were not worthy of credence, they appointed a number of physicians in each locality who were termed "certifying surgeons" and were given the exclusive right of issuing certificates of age and fitness. At first this action was not approved by the Home Secretary, but it was adhered to by the inspectors and finally was incorporated in the act of 1844.

The superintendents were instructed by the inspectors to make frequent inspections and as thorough inspections as they could under the handicap of the lack of right of entry into the factories. A number of superintendents, in spite of the low salary attached to this office, were of very high character and qualifications. Some of them, like Robert Baker, who was afterwards chief inspector, were physicians and surgeons. The inspectors received weekly reports from their superintendents and gave them frequent instructions, approving or criticizing their work. The relations between the superintendents and the inspectors were in most cases very friendly, although in one case the superintendents under one of the inspectors complained very much of his harsh treatment and unjust attitude. This inspector looked upon his office in a different light and performed his duties in a different manner from the other inspectors. His reports show that he refrained from visiting the factories, contenting himself with inquiring from manufacturers whether or not they complied with the law. He even instructed his superintendents to O. K. certain factories where the register showed a violation of the law. Most of his first reports are full of affidavits and testimony that the law was being complied with in Scotland and that the conditions in the factories were excellent. Some of his superintendents were greatly hampered in the work by his partiality, and one of them resigned in disgust, as testified before the commission of 1840, because of his inability to work under the harsh management of this inspector. The semi-annual conferences of inspectors were of great assistance in making the work of the inspectors more uniform. During these conferences the inspectors also conferred about the various modifications and

amendments of the law which were recommended to strengthen it. A joint report of Horner, Saunders, and Stuart in 1839 speaks favorably of a proposition for the creation of the office of inspector general.¹

During all this time the inspectors made valuable studies of industrial conditions, partly on their own initiative and partly upon the demand of the Government and of members of Parliament. Their work was so thorough and so impartial that the public soon began to trust their opinion and to take their advice in matters of labor legislation. During the 10 years from 1834 to 1843 the inspectors had a total of 4,145 prosecutions with 3,401 convictions, the total number of penalties recovered being £6,895 2s. 2d. (\$33,555.04). Of course, these prosecutions and convictions were for only a very small part of the violations which the inspectors discovered and probably for only an infinitesimal part of the violations which at that time existed. Nevertheless, such was the magnitude of the work performed by the first inspectors during the first 10 years of their activity that it made an indelible impression upon the industrial conditions of the country and made the factory acts laws respected and feared, if not obeyed.

ACT OF 1844.

Mention has already been made of the influence of the inspectors upon the act of 1844. Especially is this true in the administrative part of this law. The act of 1844 made numerous changes in legislation and especially in administration. It has been seen that the most important departures were the extension of protection to other industries besides textile; the inclusion of women among the protected persons and the provisions for the safeguarding of machinery and prevention of accidents.

The legislative powers, as well as the judicial, were taken away from the inspectors; but, on the other hand, their rights were more clearly defined—the right of appointing certifying surgeons confirmed, while to the superintendents was given the right of entry to all factories and schools.

The amount of fines or penalties for violating provisions of the law was raised, registration and notification of factories made obligatory, the fine for obstructing inspectors in their duty increased from £20 (\$97.33) to £50 (\$243.33). The rules and regulations of the factory inspectors regarding registration of children and young persons, and the various forms to be used by occupiers, abstracts of acts to be hung in factories, etc., were all confirmed, and the hands of the inspectors strengthened in many other ways. The certificates

¹ Reports of the Inspectors of Factories and Workshops for the half year ending 31st December, 1839, p. 24.

of fitness and of age were to be given by the certifying surgeons in the factory itself, and the provisions about certifying surgeons, their fees, etc., were strengthened and clearly defined. The forms of certificates to be used by the surgeons were made uniform, and inspectors were given the right to annul certificates which they did not approve. The enforcement of the provision for the short-time work of children between 9 and 13 years of age was made more possible by the provision that no child should work more than $6\frac{1}{2}$ hours before the midday hour or after 1 o'clock. The provisions in regard to meal hours were made very stringent and provisions were made for mealtime during the hours from 11 a. m. to 4 p. m.

There appeared a great change in the attitude of the manufacturers as well as the public at the end of the first 10 years of activity of the inspectors. The factory acts were no longer regarded as an irrevocable mistake, the factory department was recognized as an established institution, and a large number of the enlightened manufacturers were ready to comply with the law. Many of the manufacturers began to agitate for an extension of the provisions of the law to other industries as well.

While, therefore, there seemed to be not so much open opposition to the general provisions of the law concerning protected persons, there suddenly appeared a great and concerted opposition on the part of the manufacturers against some of the provisions of the act of 1844 as to the safeguarding of machinery. This opposition was called forth by the orders from inspectors to inclose all driving shafts, even those which were more than 7 feet above the floor. Unless one studies the annals of those days one is at a loss to understand the fierce opposition and the great agitation and strife brought about by this seemingly innocent order. Manufacturers combined themselves in a strong factory owners' association and conducted a most extraordinary and bitter struggle and agitation in the press and in Parliament against the "arbitrary and willful" orders of the inspectors. At one time the association counted over 5,000 members. They even succeeded in getting Miss Harriet Martineau to write a pamphlet attacking the Government and the inspectors.

In a pamphlet by Richard Oastler on "Factory legislation," etc., mention is made of some of the epithets hurled by the National Factory Owners' Association at the inspectors, who were called "blind," "unreasonable," "untruthful," "despotic," "common policemen," "spies," "informers," etc.

As a result of the agitation of the association, some retrograde laws were passed in 1850 and 1856 which succeeded in somewhat reducing the administrative power of the inspectors and weakening the law in some respects. But the work of the inspectors was continued in the same forceful manner as before. The inspectors felt the ground

solid under their feet; they had become formal adherents of State control; they had learned the industrial conditions with which they had to deal; had become experts in the various intrigues involved in their relations with dishonest and greedy factory owners, and, in general, performed a great service. In the case of Mr. Horner personally, even Karl Marx could not refrain from saying that he deserved immortal honor from the workers for his work in factory administration. England as well as the whole civilized world owes a great debt to the first inspectors. They surmounted great obstacles, overcame grave difficulties, molded public opinion, and helped labor legislation and the success of labor administration in all other countries as well as in England.

No one can tell what the fate of labor legislation would have been had England not been so fortunate in her selection of the first factory inspectors. The time came at last, 20 or 30 years after their appointment, when the whole country, manufacturers as well as workers, Parliament as well as the public, became convinced that the work of the inspectors was a great constructive work; became convinced of the high character of the inspectors, of their absolute integrity and remarkable ability, and of the great worth of their achievement.

CHANGES IN THE PERSONNEL.

There were few changes in the personnel of the inspectors during the first 15 years of the existence of the department. In 1850 one resigned and Capt. Kincaid was appointed in his stead, but held at the same time the office of prison inspector. In 1858 the death of Mr. Howell is recorded. In 1859 Inspector Horner resigned after 25 years of service. In 1861 Capt. Kincaid resigned. At this time Mr. Robert Baker and Mr. Alexander Redgrave were appointed to succeed Messrs. Horner and Howell. During 1860 there were only three inspectors; and during 1862 only two.

The nonappointment by the Government of successors to the other two inspectors was due to the agitation for a more centralized form of organization of the factory department. This was necessary in view of the fact that the number of subinspectors, as the superintendents were called after 1844, increased; and it was difficult to supervise the whole force or to make the work uniform with a large number of subinspectors under several chiefs.

With the increase in the amount of the work of supervision and the number of factories to be inspected, and with the participation of the two principal inspectors in various parliamentary inquiries, etc., it soon became necessary to provide some assistants to the two principal inspectors in order to supervise the whole force throughout the United Kingdom. In 1867, therefore, the Government appointed two assistant inspectors who were really to serve as deputies to

Principal Inspectors Baker and Redgrave, although their functions were as yet undefined and they had not all the powers of inspectors or subinspectors.

When in 1867 the factory acts were extended to workshops the giving over of the enforcement of the workshop extension act to the inspectors was at first contemplated, but it was feared that it was impossible to appoint as large a number of factory inspectors as would be needed to take care of the workshops. Therefore the enforcement of the workshop extension act was given over to the local authorities. When, however, this experiment proved a failure, the act of 1871 gave the administration of the workshop act over to the factory department.

It then became necessary to greatly enlarge the force of inspectors and a partial reorganization was made in 1871. This reorganization consisted not only in the division of all the inspectors into two grades, but also in the appointment of a new class of junior inspectors as assistants to the regular first and second grade inspectors, with qualifications, however, of the same character as were required from the regular subinspectors. In 1871 the organization of the department was therefore as follows:

Chief inspectors.....	2
Assistant chief inspectors.....	2
Subinspectors, of grade 1 (those with more than 15 years' experience), salary £410 to £500 [\$1,995.27 to \$2,433.25] a year, with a yearly increase of £15 [\$72.98]....	
Subinspectors, of grade 2 (those with less than 15 years' experience), salary £300 to £400 [\$1,459.95 to \$1,946.60] a year, with a yearly increase of £10 [\$48.67]....	
Junior subinspectors (salary £200 to £300 [\$973.30 to \$1,459.95] a year, with a yearly increase of £10 [\$48.67].....	8

Later 11 more junior subinspectors were appointed, and in 1875 two more assistants to the chiefs.

APPOINTMENT OF ASSISTANT INSPECTORS.

During these changes in the personnel and the increase in the force of the factory inspection department there was a great agitation by the representatives of the trade-unions for the creation of a new class of inspectors, consisting of workmen who had had factory and workshop experience. The trade-unionists claimed that more sympathy toward the working population and factory workers could be expected from inspectors who themselves came from the working class, and that the enforcement of the provisions of the workshop act did not call for the high educational qualifications needed for the other factory inspectors.

There was at first considerable opposition on the part of the regular inspectors, voiced especially by inspectors Redgrave and Baker. The inspectors resented the imputation that they could not feel sympathy for the working population, and pointed with pride to

the history of the factory department and the work of the inspectors and subinspectors since its creation. Inspector Redgrave in his report for the half year ending April 30, 1868, claimed that it would not be economical to create an inferior grade of inspectors. His remarks are as follows: ¹

Having had many years' experience as an inspector, I had always been of the opinion that a staff well employed and adequately remunerated would be more economical and more efficient than a larger staff of gentlemen, possibly not working so hard, and not so well paid.

In 1873 he continued in his report as follows: ²

My experience has proved to me that the law is obeyed more readily and cheerfully when administered by persons of some social position than by persons holding an inferior rank. I attribute much of the success of the factory acts to the fact that they have been administered by men of intelligence, thoroughly relied upon for impartiality and integrity—men whose discretion in sometimes delicate circumstances can be relied upon—in order to retain the hold we have always had upon the confidence of manufacturers and operatives. I also consider it of great importance that the inspecting officer should be of a rank in life and education at least equal to the better class of masters. The employment of an inferior class of subinspectors could only be organized where the work of the two officers was clearly defined. Not so in the factory department. The duties of subinspectors could not be separated in a similar way; a subinspector and his subordinate have to make the same investigations, to go over the same ground, * * *. Another serious objection to employment of inferior inspectors is * * * the system of "tipping," * * *.

This opinion, however, to which Redgrave adhered during all his service as inspector and chief inspector does not seem to have been shared by the Gladstone Government, which in 1881 made the experiment of appointing one workman as inspector, exempting him from civil service requirements.

Meanwhile there was much friction between the two inspectors, Baker and Redgrave. They differed in their opinions upon many subjects connected with the department, and in 1878 Mr. Baker resigned after nearly 50 years of service, and Alexander Redgrave was appointed chief inspector, thus at last centralizing the whole department under one head. He held his office until October, 1891, when he was succeeded by Frederick H. Whympier; the latter soon retired on account of ill health and was succeeded in 1892 by R. E. Sprague Oram, who in turn retired in March, 1896, and was succeeded by Dr. Arthur Whitelegge, who is at present the chief factory inspector.

¹ Reports of the Inspectors of Factories for the half year ending 30th April, 1868, p. 9.

² Reports of the Inspectors of Factories for the half year ending 31st October, 1873, p. 9.

The precedent of the Gladstone Government in appointing a workman inspector was not followed until 1892, when the Government at last appointed 15 workmen inspectors, called assistant inspectors, without civil-service examinations. The Trade Union Congress of 1893 unanimously thanked the Government and expressed their hope for the extension of this division of factory inspection.

The following excerpt from the report of 1893 by Chief Inspector Oram is interesting in this respect:¹

As it was evident that the existing staff of inspectors could not visit the workshops, especially in the manner contemplated by the act of 1891, they being so very numerous, and as it was also evident that upon the efficiency and vigilance of the inspection brought to bear upon them the observance of the law would depend, you considered it desirable to introduce into the service a new class of inspectors, not so highly educated nor so highly paid as those on whom the work has hitherto devolved, but drawn from the working class themselves—men, who from their antecedents and from their training might be supposed to have a specially keen eye for the sort of defects which deteriorate the health of the workers who are found in these places. You accordingly appointed 15 assistants to H. M. inspectors, all of them workmen, in order to reach amongst others the lowest class of workshops, places which but for their appointment must have remained undiscovered and their evils unremedied. Even this large reinforcement has left us still short handed for the work we have to accomplish, but you have announced your intention shortly to increase the number of this class of public servants.

The new staff of assistant inspectors was put under the jurisdiction of one inspector, who reported a considerable amount of work for the year 1892. He showed that the nine inspectors, who were assigned to the inspection of London workshops, visited during the year 4,423 workshops, 2,054 domestic workshops, 3,825 outworkers, attended to a large number of complaints, instituted 242 prosecutions, of which only 14 cases were dismissed, and recovered £203 (\$987.90) as penalties.

Since that time there has been some change made in the status of the assistant inspectors (1) in that they have been scattered throughout the whole inspectorial districts and one assistant or more given to each district inspector; and (2) in that they have been divided into two grades, so that at present each district inspector has one or more assistant inspectors whose chief duty is the inspection of the workshops, outside of the sanitary conditions which are under the jurisdiction of the local authorities, and who make such inspections to detect violations of the Sunday law, work in bakeshops, etc., as are assigned to them by their district inspectors.

There is, however, at present much agitation going on, especially among the trade-unions and the representatives of the labor class in

¹ Report of the Chief Inspector of Factories and Workshops for the year 1893, p. 18.

Parliament, and there is considerable criticism of the attitude of the Government toward the workmen inspectors in the department. This criticism is mainly directed to the following points: (1) The small number of the assistant inspectors, (2) their low pay, and (3) their inferior status in the department.

The representatives of the laboring class in Parliament urge an increase of the inspectors coming from the working class, as this would mean a more frequent inspection of the workshops and home workers at a comparatively small expense, in view of the low salaries of these inspectors.

The complaint made as to the low pay and the inferior status of these inspectors has been very bitterly expressed in the parliamentary debates. In a recent debate one of the labor members spoke as follows:¹

We have pressed, and we shall continue to press, that the assistant, the working-class assistant, shall have a very much wider door open to him to pass up than has been the case hitherto. He could not do worse than is being done, and the chances are that he would do very much better. * * * If the department had gone on in a totally different line from the beginning, the work would have been better done than it has been. The absurdity of setting aside a certain body of men, known officially as "Mr.," and putting others over them who are known officially as "Esquire," is just like calling certain cricketers "professionals" and others "gentlemen." That is simply absurd.

The partisans of the assistant inspectors point out that not only do they receive very small pay in comparison with the other inspectors, but that the examinations are made so difficult that it is impossible for even experienced assistant inspectors to get out of their class and become regular inspectors. They also complain that these assistant inspectors are allowed third-class railway fare only and a comparatively low allowance for expenses, which puts them in a very inferior position during their travels and before other people.

On the other hand, it has been pointed out by the Home Secretary that six or seven assistants have in recent years taken an examination for inspectorships and have successfully passed and have become regular inspectors.

There seems to be as yet prevalent among the inspectors in the department a feeling not much different from that expressed by Chief Inspector Redgrave when he opposed the creation of an inferior class of inspectors. It is pointed out that the creation of an inferior class of inspectors is not leading to good discipline within the department; that the social relations between the two classes of inspectors are more or less strained; that these assistant inspectors are not so trained in all the branches of activities in workshops as to be able to under-

¹ Parliamentary Debates (Official Report), Fifth Series—Vol. LV, House of Commons, July 23, 1913, pp. 2066, 2067.

stand the technicalities of all workshops; that they are unable to command the respect of the employers, who speedily recognize their inferior status by their demeanor and habits of speech, and that the general value of the work of these assistants is rather doubtful.

This opinion has been forcibly expressed as follows:¹

It is somewhat doubtful whether this new departure has been attended with the success which was anticipated by its advocates. It is evident that the work of inspection requires many qualities which are to be found only in educated men, endowed with a considerable amount of tact; and this, perhaps, is even more necessary in dealing with the small employers in workshops than with large employers who are more familiar with the requirements of the factory acts.

WOMEN'S DEPARTMENT.

At the same time that the agitation was going on for the appointment of assistant inspectors there was also a strong agitation for the appointment of women as inspectors, especially when the various acts were passed extending the jurisdiction of the inspectors to all industries, also to those which included woman's work, homework, etc. The women's trade union congresses and organizations urged from time to time, as early as the seventies and also in the eighties, that women inspectors be appointed. Inspector Redgrave was a consistent opponent of this scheme, as well as of the appointment of assistant inspectors; in his report for December, 1879, he alludes to this agitation and gives his opinion as follows:²

So long as the duties of inspectors of factories are conducted upon their present lines, I do not see how the services of practical working men or of ladies could be made available to render the administration of the law more effective. * * * Possibly, * * * some details here and there might be superintended by a female inspector, but * * * I fail to see the advantages likely to arise from her ministrations in a factory or a workshop so opposite to the sphere of her good work in the hospital, the school, or the home.

In 1892 Home Secretary Asquith received a deputation from the Women's Trade Union League pressing for the appointment of women inspectors. He promised to comply with their request and in July, 1893, the first two women inspectors were appointed in the persons of Miss Abraham and Miss Patterson. Miss Abraham had previously been a member of a labor commission, and was also a member of the Women's Trade Union League.

Chief Inspector Oram, who favored this change as well as the appointment of assistant inspectors, wrote as follows in his report for the year 1893:³

Being of the opinion that the field for the employment of women, within the limits of their own special capacities and aptitudes, should

¹ A History of Factory Legislation, by B. L. Hutchins and A. Harrison, Westminster, 1903, pp. 248, 249.

² Reports of the Inspectors of Factories and Workshops, for the half year ending 31st October, 1879, p. 100.

³ Report of the Chief Inspector of Factories and Workshops for the year 1893, p. 10.

be as wide and as large as you could possibly make it, and that there is no field in which they could be more usefully or fruitfully employed than in looking over the health and the industrial conditions under which their fellow women labor in the factories and workshops, you appointed two ladies as inspectors, whose labors have already been found most useful; the appointment of two others, with suitable qualifications, which has been determined upon, will, I believe, also be a great additional advantage to the department.

The main arguments for the appointment of women were (1) the large number of women in manufacturing establishments in the United Kingdom; (2) the greater understanding of women for the needs of their sex and of the children; (3) the greater confidence that women would feel toward women inspectors; (4) the feeling of modesty in most women, which prevents them from making complaints against certain sanitary inconveniences to male inspectors; and (5) the special adaptability of women for the inspectorial work.

The two women who were appointed as inspectors were not given special districts but were assigned to make special inquiries in the principal towns, acting as peripatetic inspectors. The first work of Miss Abraham was to make an examination of millinery, dressmaking, and tailoring shops in London, as well as to make an extended trip in various cities and towns in England, making a special inquiry into the laundry and lucifer-match trades. Miss Patterson made a tour of Scotland and made an inquiry into the conditions of laundries, dairy farms, etc., and studied the problem of overtime work in some factories. Each of them made a very exhaustive report to the chief inspector in 1894.

Because of the knowledge and experience of the first women appointed, as well as their high social position, the first women inspectors were not assigned to subordinate positions. Moreover, their work did not consist in regular inspection in the districts, but in making special inquiries and investigations which gave full play to their abilities as investigators. Their work seems to have met great approbation, especially with the public, and in the next year two additional inspectors were appointed, Miss Anderson and Miss Dean. Miss Anderson was a university graduate, a member of a woman's university settlement, and served as civil service commissioner for two years previous to her appointment as factory inspector; Miss Dean was for two years a sanitary inspector of the Kensington district of London.

In 1895 a separate department, called the female inspectors department, was organized and in the spring of 1896 a fifth woman inspector, Miss Squire, also a former sanitary inspector of Kensington, was appointed, and Miss Abraham was appointed superintending inspector of this separate department.

The work of the women inspectors gave good results and was valuable also because it acted as a stimulus to the male inspectors. From the beginning there was some resentment among the inspectors toward the women inspectors, and as Miss May E. Abraham, now Mrs. H. J. Tennant, remarked: "The knowledge of years in age and in service, a certain sense of territorial possession as district inspectors, gave natural ground for resentment of the younger peripatetic women inspectors."¹ Perhaps this was one of the reasons; but besides this reason the inspectors probably felt the injustice of comparing their routine work with the work of the women inspectors who had no special districts to attend to, no clerical work to do, no special duties to perform, no responsibilities to their superiors, and who were not limited either as to the time or the extent of their special inquiries and studies. The inspectors felt that they could do the work just as well as the women. There was a doubt in their minds as to the ability of women to do better work than the men, especially if these women were of the same class as the rest of the inspectors. There was a feeling that the appointment of women in a special department within the department would result in a complicated service, a duality of work, overlapping of duties, and a lower standard of discipline.

There seemed to be considerable friction and some conflict between the men inspectors and the women inspectors. Mrs. Tennant, in the article mentioned, speaks of the "prejudice, distrust, and almost unanimous objection of the men inspectors against the introduction of women into the department." She even claims that "some district inspectors gave warning to the employers of the impending visit of a woman inspector, which visit was in courtesy notified to him, such action being deplorable in its influence." She also mentions the fact of a district inspector testifying in a case of prosecution by a woman inspector against the woman inspector's findings.

When, in 1898, Mrs. Tennant resigned, the title of Superintendent Lady Inspector was abolished and her successor "was appointed to an office," as Mrs. Tennant says, "of altered title and reduced power."¹ The power, too, of the general staff of women inspectors was reduced. Mrs. Tennant complains that "my successor's title of 'Principal Lady' suggests a leading position in a comic opera rather than in a Government department." This reduction in the status was criticized as injurious to the authority and influence of the women's department.

She also complained that under the new regulations all prosecutions had to be submitted to the chief inspector and that the woman's

¹ The Women's Factory Department, *Fortnightly Review*, July, 1898, p. 149.

superintending inspector "is in fact, as a woman, placed in subordination to the men's department."¹ When now a woman inspector discovers a case of insufficient ventilation, structural alteration, insufficient heat, etc., she gives the matter into the hands of the district inspector.

In spite, however, of the criticisms of the inspectors on the one hand, and the agitation of the Women's Trade Union League and other trade-union organizations, the status of the women inspectors has remained about the same since that time, with a constant increase in the number of women inspectors and with not many great changes in their functions.

In the parliamentary debate, already referred to, members of Parliament expressed their high regard for the work of the women inspectors.²

In his reply to the criticisms of the work of the men inspectors as compared with that of the women inspectors, the Home Secretary, Mr. McKenna, explained the difference in the status and in the work of the two classes of inspectors, and the seeming brilliancy of the reports of the women inspectors. The fact remains, however, that there seems to be abroad a feeling that the women inspectors are doing better and more efficient work than the male inspectors, that their reports are more interesting, and that the number of woman inspectors should be increased even at the expense of the men inspectors' department.

RELATION TO LOCAL AUTHORITIES.

The origin and historical development of the duality of control, which is found in the administration of labor laws as far as they affect workshops, dates to the early sixties, when first the factory acts were extended to workshops and when the domestic manufacturing specialty was brought under the control of the State. When in 1864 the number of subinspectors was increased in order to cope with the control of workshops, for at that time, according to the findings of the children's employment commissioners, "no administrative machinery could be suggested so efficient and satisfactory as the existing one of factory inspection,"³ it was found that the number of inspectors would have to be greatly and unduly increased in order to be able to take care of all the workshops. When, however, in 1867, "practically all 'manual labor exercised by way of trade or for purposes of gain' was brought under inspection, the experiment

¹ The Women's Factory Department, *Fortnightly Review*, July, 1898, p. 151.

² Parliamentary Debates (Official Report), Fifth Series—Vol. LV, House of Commons, 23 July, 1913, p. 2069.

³ A History of Factory Legislation, by D. L. Hutchins and A. Harrison, Westminster, 1903, p. 223.

was tried of making the local sanitary authorities responsible for the administration of the law in workshops."¹ But it is explained, "this experiment, which lasted for four years, proved, with very few exceptions, to be a complete failure,¹ * * *."

This failure is partly explained by the defects in the law itself, by the fact that the law provided for a permissive instead of a compulsory enforcement of the law by the local authorities, and failed to provide against the various methods of evasion of the law. The result was deplorable. There were few places where the workshop act was properly enforced by the local authorities, the exception being a very few cities and localities where the health authorities appointed special officers for its enforcement.

So patent was the failure of this experiment, so completely did the London vestries in particular neglect their duty, that Parliament quickly withdrew the power that had been given to them, and in 1871 the administration of the workshop regulations was intrusted, like the rest of factory legislation, to the Home Office.²

The act of 1871 read as follows:³

It shall cease to be the duty of the local authorities to enforce the provisions of the workshops acts, 1867 to 1871, and it shall be the duty of the inspectors and subinspectors of factories to enforce the provisions of these acts.

This large increase of work for the factory inspectors, from 30,000 places under their control in 1867 to 110,000 in 1871, made necessary a reorganization of the factory department, an enlargement of its working force, and created many difficulties from which the department still suffers.

During the same year of 1871 a new class of junior subinspectors was appointed. But the increase in the number of the force was inadequate to insure the proper enforcement of the law in the workshops, and the result was not only a lax administration of these laws as far as relates to workshops but also a neglect of much of the real factory-inspection work hitherto done by the department. With the enactment of the public-health act in 1875 a large part of the sanitary control of workshops was again found to be in the jurisdiction of the local authorities and there was again quite a confusion as to the exact functions of each class of inspectors. One of the mayors of the city council is quoted in this relation as follows:¹

There was evidently a missing link in this business and it was this, that nobody seemed to know where the duty of the sanitary inspector ceases and where the factory inspector begins, * * *.

¹ A History of Factory Legislation, by B. L. Hutchins and A. Harrison, Westminster, 1903, p. 225.

² Amy Harrison in "Economic Review," January, 1901, p. 33.

³ A History of Factory Legislation, by B. L. Hutchins and A. Harrison, Westminster, 1903, p. 230.

In 1890 the select committee of the House of Lords on the "sweating system," oblivious of the experiences of 1867 and 1871, recommended the same thing, which became a law in 1891, and for nine years the 100,000 women of London had to rely for protection against unsanitary conditions, not on the health authorities or factory inspectors, but on the tender mercies of the London vestries. For the first four years after 1891 it is not too much to say that 42 of the 43 local authorities in London wholly neglected the work which Parliament had given them to do with regard to workshops.² The solitary exception was Kensington, which had four sanitary inspectors. Throughout London the factory act of 1891 was practically ignored. "In fact, in 33 out of the 43 districts into which London is, for sanitary purposes, divided, the inspection of women's workshops in 1900 is scarcely more effective than it was in 1867."³

The act of 1901 still further increased the powers of the local authorities, and while here and there some of the officers of the local authorities are fully able to perform their duties, in the majority of localities this work is still very much neglected and the enforcement of the acts leaves much to be desired in relation to sanitary conditions of workshop.

This dual control of workshops leads to an overlapping of functions the solution of which is still problematic. As was said:³

With regard to the division of functions between factory inspectors and sanitary inspectors, the act of 1901 makes little change. The result of the present confusion is not so much that friction is caused by two sets of officials doing the same work twice over, as that the work is neglected owing to the fact that both sides are practically responsible. There is no doubt that until the local authorities are compelled to appoint a certain number of inspectors, according to the number of workshops, there will be no uniform system of inspection and the action of the local authorities shall be decided largely by personal inclination of the individual medical officers of health.

The practice at present is for a factory inspector, noticing any defects in sanitary conditions when on his inspection, to refer this matter to the sanitary inspector or health authorities. If on a future visit he finds that the defect has not been remedied, he may either notify the local authorities or institute prosecution himself, charging the expenses to the local authorities. The factory inspector has no knowledge of the visits of the health officer or sanitary inspector in the workshop, and the only way by which the visits of the health inspector are known is by the annual reports of the various health officers.

¹ A History of Factory Legislation, by B. L. Hutchins and A. Harrison, Westminster, 1903, pp. 236, 237.

² Amy Harrison in "Economic Review," January, 1901, p. 33.

³ Paper read before the British Association for Labor Legislation, Section F, by Miss Hutchins, Belfast, 1902.

CERTIFYING SURGEONS.

It has been seen that as soon as the first four inspectors began their work in 1834 they came to the conclusion that there was no possibility of enforcing the provisions as to child labor without proper certificates of health and age, and without physical examination of the child workers. Inspector Rickards first appointed, on his own initiative, a number of physicians who were to give certificates, thus giving birth to the new institution of certifying surgeons. The example was followed by Inspector Horner and later by the other inspectors, and although at first opposed by the Home Office, it was afterwards tacitly consented to.

In 1844 the status of the certifying surgeons was legalized, and henceforth they became a part of the factory-inspection system. According to this act, all children under 16 had to bring a surgeon's certificate not later than seven days after the beginning of work; the only physicians entitled to give such certificates were those who had diplomas from universities and colleges; these surgeons were appointed and discharged by the inspectors with the approval of the Home Office, their districts were limited by the inspectors, and their names attached to the registers, constantly kept at the entrance to each factory. Their examinations were to be made within the factory on forms prescribed by the inspectors and for fees to be paid by the owners, as mutually determined or set by the inspectors.

In spite of these wise provisions, the matter of certification, in the absence of general health registers and in the absence of uniformity of service throughout the United Kingdom, left very much to be desired. Many of the certificates were fraudulently obtained and trafficked in, and many of the surgeons neglected their duties very much. In Scotland certification was hardly in existence. Inspector Stuart cared very little about this institution of certifying surgeons, while Inspector Kincaid, who succeeded him, had no time for their supervision nor for the general inspectorial work, as he held at the same time the office of inspector of prisons, so that for many years the work of the certifying surgeons was not satisfactory and, during the sixties, Inspector Redgrave claimed that in view of the general adoption of the birth and baptismal certificates, there was no further need of the work of the certifying surgeon.

This matter seemed to be one of the several points upon which the two chief inspectors, Redgrave and Baker, differed very much and which led finally to the resignation of Inspector Baker.

Inspector Baker was himself formerly a certifying surgeon and insisted upon the great value of the surgeons' work in factory inspec-

tion, especially upon their examination for certification of physical fitness. When the acts were extended to workshops, the number of children who had to be examined was so large that both Redgrave and Baker united in the provision that not all factory children need be examined in the factories, but that in all factories employing more than five children those children might be examined in the homes of the certifying surgeons.

Under the acts passed since 1867 the duties of certifying surgeons have greatly increased, and besides certification for physical fitness their duties embrace also the investigation of accidents, industrial poisoning, etc.

ADMINISTRATIVE PROVISIONS.¹

The part of the factory and workshop act relating to the administration of the law and its enforcement is embraced in those sections of the act referring to—

1. The orders of the Home Secretary.
2. The powers, duties, etc., of the inspectors.
3. Duties, etc., of the occupiers.
4. Relations to the local authorities.
5. Provisions applying to certifying surgeons.
6. Provisions relating to legal proceedings, prosecutions, and penalties.

POWERS, ETC., OF THE HOME SECRETARY.

By the act of 1834 the factory inspectors were given the right to make special rules and regulations, a right they had used at the beginning, but which was taken away from them by the act of 1844 and concentrated in the hands of the Home Secretary. Since that time all the succeeding laws have recognized the wisdom of giving wide powers and discretion to the Home Secretary in the interpretation of the various acts and in the definition of certain of their provisions as well as the granting of exemptions, exceptions, etc. The Home Secretary is given power to issue orders which become legal without being laid before Parliament. These orders may be issued only when they deal with the following subjects:

1. Power to act in default of local authority.
2. Substitution of owner for occupier for certain purposes in cotton-cloth tenement factories.
3. Alteration of table of humidity.
4. Exemption of Crown factories and workshops in public emergency.
5. Repeal of provisions in previous acts.

¹ The information presented under this head has been drawn from "The Law Relating to Factories and Workshops," Abraham and Davies, sixth edition, London, 1908, pp. 13-127.

The Home Secretary is also given power to make special orders, which must be duly published for the information of persons who are interested, and laid before Parliament. Any orders may be annulled by resolution within 40 days without prejudice to the making of a new order. If not so annulled, they have the force of law. The cases in which special orders affecting occupiers may be made are as follows:

Special obligations.

- Prohibition of taking meals in certain parts.
- Requirement of certificates of fitness for workshops.
- Requirement to keep list of outworkers.
- Prohibition of employment of outworkers in unwholesome premises.
- Prohibition of home work where there is infectious disease.
- Requirement of extra space when artificial light is used.
- Requirement of special cleanliness or ventilation where special exception is allowed.
- Requirement of extra space when place is occupied by day as workshop and by night as sleeping apartment.
- Requirement of thermometers in factories and workshops.
- Standard of ventilation.
- Standard of sufficiency and suitability in sanitary conveniences.
- Requirement of notice of certain diseases in factory or workshop.
- Adaptation of provisions relating to cotton-cloth factories to textile factories.
- Requirement of particulars in nontextile factories and workshops and for outworkers.

Special powers.

- Employment from 9 a. m. to 9 p. m.
- Substitution of another day for Saturday.
- Continuous employment for five hours in textile factories between November 1 and March 31.
- Continuous employment for five hours in hosiery factories.
- Allowing different holidays to different persons.
- Overtime employment for half an hour at end of day.
- Overtime employment of women to meet bad weather or press of orders.
- Overtime employment of women to preserve perishable articles.
- Overtime employment in water mills.
- Night employment of male young persons of 14.
- Treatment of separate branches as separate factories or workshops.
- Variation of period of employment and partial employment on Sundays and holidays in creameries.

Special exemptions.

From obligation to limewash.

From obligation to make all mealtimes simultaneous.

From prohibition of employment or of presence during mealtimes in rooms where work is being done.

From regulations as to inside and outside employment.

From application of act to certain domestic workshops.

From application of provisions as to period of employment, times for meals, and holidays.

a. In fish preserving on arrival of the fishing boats;

b. In fruit preserving during certain months.

From regulations as to grindstones in tenement factories.

Further, the Home Secretary may issue regulations for dangerous trades. Notice of proposed regulations has to be given to persons concerned, and, if objections are raised, a public inquiry may be held in a manner similar to that which obtains in the case of special inquiries into the causes of accidents. The inquirer, after hearing the evidence, may amend the draft regulations, which have then to be submitted to Parliament as in the case of special orders.

"Thus the secretary of state for the Home Department has very wide powers under the factory and workshop acts, and these powers are freely used in certain cases. It is beginning to be felt that the multiplicity of orders is becoming burdensome, and, although complaints are rightly made that certain dangerous trades are still without regulations, and that the powers of the Home Secretary are still insufficiently exercised in this direction, yet the complications arising from an excessive number of orders on a variety of subjects have the serious disadvantages of rendering administration more difficult and making it impossible for the persons chiefly concerned to have a detailed knowledge of the law."¹

POWERS, ETC., OF THE INSPECTORS.

The administration of the factory inspector's department is given in the charge of the Home Secretary and all appointments of inspectors of all grades are made by him. An inspector is generally authorized to exercise such powers as may be necessary for carrying the acts into effect. In particular he has the following powers:

To enter by day any place which he has reasonable cause to believe to be a factory or workshop;

To enter, inspect, and examine, either by day or by night, at any reasonable time, any place which in fact is a factory or workshop or any part of one, if he has reasonable cause to believe that any person is employed there;

¹ Report on the Administration of the Labor Laws in United Kingdom, a pamphlet of 47 pages published by the British Association for Labor Legislation, and compiled by Sophy Fanger, honorary secretary, 1908, p. 29.

To take a constable into a factory or workshop if he has reasonable cause to fear obstruction;

To require the production of the registers, certificates, notices, and documents kept in pursuance of the acts, and to inspect, examine, and copy them;

To ascertain whether the requirements of the factory acts and the public health acts are complied with in a factory or workshop;

To enter any school in which he has reasonable cause to believe that any children employed in a factory or workshop are being educated;

To examine, either alone or in the presence of any other person, with respect to matters under the acts, any person whom he either finds in a factory or a workshop or a school, or has reasonable cause to believe to be employed in a factory or workshop, or to have been so employed within two months;

To require any such person to be so examined, and to sign a declaration of the truth of his statements; and

To prosecute, conduct, or defend before a court of summary jurisdiction, or a justice, any proceeding arising under the factory acts or in the discharge of his duty.

The occupier of a factory or workshop and his agents and servants are obliged to furnish an inspector with the means required by him for the exercise of his powers.

The following acts are declared to amount to obstruction of an inspector, and to be punishable by fine:

Delaying an inspector in the exercise of his powers;

Failure to produce a certificate or document;

Failure to comply with an authorized requisition by an inspector;

Concealing or preventing a child, young person, or woman from appearing before an inspector or being examined by him; and

Attempting to conceal or prevent such a person from so appearing or being examined.

Any person may decline to answer a question which tends to incriminate him, and commits no offense by so declining.

Every inspector is furnished with a certificate of his appointment, and on applying for admission to a factory or workshop he must, if required, produce his certificate to the occupier. Any person who either forges such a certificate, or uses a forged or false certificate, or personates an inspector, or falsely pretends to be an inspector, may be imprisoned for a period not exceeding three months, with or without hard labor.

Besides the ordinary powers enumerated above, an inspector has certain other powers and duties, which are:

To take proceedings where the district council are in default;

To take part in proceedings at inquests;

To approve of a school for a child's attendance, where there is no recognized efficient school which the child can attend within 2 miles of its residence;

To appoint certifying surgeons;

To enforce the truck acts;

To enforce the elementary education acts so far as concerns the employment of children; and

To enforce the prevention of cruelty to children act, 1894, if so directed by the secretary of state.

The position of the inspector, as far as relates to the sanitary condition of workshops, is taken by the district council, acting by their officers, the inspector of nuisances and the medical officer of health, who for this purpose have all the powers of a factory inspector.¹

DUTIES, ETC., OF THE OCCUPIERS.

The duties of occupiers, especially those relating to notices, registers, and returns, are thus defined:²

Notices to be exhibited in the factory or workshop;

Registers and lists to be kept in the factory or workshop;

Notices, etc., to be sent.

Notices to be exhibited.—Notices in a factory or workshop must be affixed at the entrance, and in other places where required by the inspector. They must not be removed, and must be so placed as to be easily legible. The obligation to exhibit notices does not apply to domestic factories or workshops, to men's workshops, to docks, wharves, quays, warehouses, or to buildings in course of construction, but in each case an abstract of the applicable provisions of the principal act is officially printed and obtainable.

It is compulsory in every factory and workshop to exhibit notices showing the following matters:

An abstract of the acts in the prescribed form, which include—

The name and address of the prescribed inspector.

The name and address of the certifying surgeon.

The clock (if any) by which times are fixed.

The number of persons who may be employed in each room.

The period of employment and mealtimes, and the mode of employment of children.

Prohibition of employment of children and young persons in certain places.

Prohibition of taking meals in certain parts.

It is compulsory in Scotland and in Ireland to exhibit a notice showing the holidays for the year. This must be done in the first week in January.

¹ The Law Relating to Factories and Workshops, Abraham and Davies London, 1906, pp. 98-101.

² Idem, p. 101.

It is compulsory in certain factories and workshops to exhibit notices showing the following matters:

Special rules or regulations in force for dangerous trades.

Supplementary abstract for humid textile factories—

Cotton cloth.

Other.

Humidity table—

Spinning by French or dry process.

Other humid textile processes.

(In cotton cloth and other humid textile factories.)

Humidity record—

Humid cotton-cloth factories.

Other humid textile factories and works under flax or hemp and jute regulations.

Where it is intended in particular factories or workshops to take advantage of certain special provisions of the acts, it is necessary as a condition of the right to take such advantage to exhibit notices showing the following matters:

Women's workshop system.

Eight hours' employment of women and young persons.

Alteration of system of employing children.

Change of hours or mealtimes.

Fixing or altering holidays.

Thermometer dispensing with daily readings—

Hemp and jute regulations.

Flax regulations.

Intention to act upon a special exception.

Registers and lists to be kept.—These registers and lists must be kept open to inspection by the inspector. They need not be kept in domestic factories or workshops and the only requirement which applies to men's workshops is that relating to outworkers' lists. They are as follows, with their official numbers:

The general register, for factories and workshops in which certificates of fitness are required (37); for other workshops (38), showing the prescribed particulars as to—

- a. The children and young persons employed;
- b. Limewashing;
- c. Every accident of which notice must be sent to an inspector;
- d. Every special exception of which the occupier avails himself;
- e. Certificates;
- f. Industrial poisoning;
- g. Employment in shop;
- h. Steam boilers;
- i. Any other matters prescribed;

Supplementary sheet for certain charitable and reformatory institutions (67);

List of outworkers and their places of employment (44);

School certificates (39).

Overtime register report.

Fruit preserving (740).

Other works (338).

Overtime records (12).

} Wherever overtime is worked.

Required under regulations and special rules—

Anthrax cautionary placard (horsehair).

Health registers (in certain classes of works).

Register of chains (docks).

Schedule B (earthenware and china).

Thermometers notice (hemp and jute and flax).

Notice (felt hats; proofing and store rooms).

List (fruit preserving) persons employed under special exception.

Notices, etc., to be sent.—With four exceptions, all the notices an occupier of a factory or workshop may be required to send are to be sent to the inspector for the district. The exceptions are—

Annual return from certain charitable and reformatory institutions to be sent to the secretary of state.

Return of persons employed (to be sent at the direction of the secretary of state, at intervals of not less than one or more than three years)—

Textile factories.

Nontextile factories.

Workshops.

Humidity notice (to be sent by occupier of cotton cloth or of other humid textile factory to the chief inspector.)

Lists of outworkers and their places of employment in the occupations [in a specified list of trades] (to be sent on or before February 1 and August 1 to the district council.)

The occupier of a factory or workshop is required to serve the following notices on the inspector for the district. In certain special cases the notice must be served also upon the certifying surgeon, the chief inspector of explosives, and the board of trade.

Notice of occupation of a factory or workshop (to be sent within a month after commencing occupation).

Notice of any accident causing death or serious bodily injury (to be sent forthwith).

Notice of certain "dangerous occurrences" (to be sent forthwith).

Notice of poisoning (lead, phosphorus, arsenic, mercury, or anthrax).

Notice of readings of thermometer in cotton-cloth factories (to be sent at the end of each month and a copy kept).

Report of overtime employment (to be sent not later than 8 p. m. on the day of the employment).

Where it is intended in particular factories or workshops to take advantage of certain special provisions of the acts, the occupier must, as a condition of the right to take such advantage, serve notice on the inspector showing the following matters:

Women's workshop system.

Eight hours' employment of women and young persons.

Alteration of system of employing children.

Change of hours or mealtimes.

Fixing or altering holidays.

Thermometer dispensing with daily readings—

Hemp and jute regulations.

Flax regulations.

Intention to act upon a special exception.

The following is a list of the subjects of special exceptions under the acts. In all cases the occupier of a factory or workshop, before availing himself of a special exception, must exhibit a notice of his intention in the factory or workshop, and serve a similar notice on the inspector for the district. In certain cases exceptions are in force arising under certain sections which apply to the subjects under the heading "Period of employment."

List of special exceptions:

Exemption from lime washing, etc.

Five-hour spell in certain textile factories.

Employment during meal hours.

Separation of sets for different meal hours.

Separation of sets for different holidays.

Substitution of another day for Saturday.

Substitution of Friday or Saturday for Sunday in Jewish works.

Period of employment.

9 a. m. to 9 p. m. in bookbinding works and laundries.

Extended periods for women on three fixed days per week in laundries.

Different periods on different days of the week in laundries.

On Saturdays in turkey-red dyeing.

In Jewish works.

In fish curing.

Supplementary sheet for certain charitable institutions (67).

List of institutions and their places of employment (68).

School certificates (69).

Overtime register report.

Child growing (740).

Other work (741).

Overtime record (72).

Wherever overt

Regulation under regulations and special rules.

Further necessary placed (beneficiary).

Health records in certain classes of work.

Register of cases (66).

Statute 3 (beneficiary and child).

Transmission under long and (note a).

State 34 (note: growing and state in).

Law (child growing) process employment.

State, etc. in a way. With that exception, sample of a family or institution may be used in the report for the district. The same shall mean that certain charitable institutions in a way in the summary of the

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Different periods on different days of the week in laundries.

On Saturdays in turkey-red dyeing.

In Jewish works.

In fish curing.

list must be furnished to the district council in whose district the worker lives.

Every district council must keep a register of the workshops in the district.

The medical officer of health must report annually to his council upon the administration of the factory acts in workshops and work places, and this report must be sent to the Home Secretary.

When an inspector receives notice of the occupation of a workshop he is required to send it to the district council, and the medical officer of health is required to inform an inspector when he becomes aware of a workshop in which a child, young person, or woman is employed, and in which there is no abstract of the acts.

Where there is a difference of opinion between the district council and the owner of a factory or workshop in respect of the precautions against fire the district council has by notice required to be taken, either party may within a month require the matter to be referred to arbitration. The arbitration is to be conducted according to the rules in the first schedule, and it may either discharge, amend, or confirm the notice. If the notice is confirmed or amended by the award the owner is required, under penalty, to comply with the requirements of the notice.

PROVISIONS APPLYING TO CERTIFYING SURGEONS.

A certifying surgeon is appointed by the chief inspector, who may revoke the appointment. Every appointment or revocation may be annulled by the Home Secretary on appeal to him.

The person appointed must be a duly registered medical practitioner, and must not be directly or indirectly interested in a factory or workshop in his district or in any business or process or patent connected with such factory or workshop.

Where there is no certifying surgeon for a factory or workshop, the poor-law medical officer for the district is to act for the time being.

The name and address of the certifying surgeon for the district is to be affixed in every factory and workshop.

The main duties of a certifying surgeon are—

1. To examine children and young persons as to their fitness for employment in a factory and in certain specified workshops; and
2. To investigate and report to the inspector upon accidents occurring in a factory or workshop.

He is also required to make a similar investigation and report with respect to every case of lead, phosphorus, arsenical, or mercurial poisoning or anthrax occurring in a factory or workshop and reported to him by the occupier; he must, when appointed to do so, examine persons under special rules and regulations; and he must, when directed by the Home Secretary, reexamine any child or young person, and make any special inquiry.

He must make an annual report to the Home Secretary, at the prescribed time, as to the persons he has inspected and the results of such inspection, and he must comply with all rules made by the Home Secretary for his guidance.

Fresh duties fall to the certifying surgeon under the workmen's compensation act, 1907. The details of these duties and the fees to be paid in respect of them by the employer and the workman will be found in the order made under the act.

Certificates of fitness.

No certificates may be granted without a personal examination of the person named in the certificate, and the examination must generally be made in the factory or workshop where the child or young person is employed or about to be employed. But if less than five children or young persons are employed in the factory or workshop, or if, for some special reason, written permission is obtained from the inspector, the examination may be made elsewhere. The certifying surgeon may grant a certificate in respect of employment in all or any of the factories in the occupation of the same occupier which are within his district.

If the certifying surgeon is satisfied by the production of a certificate of birth or other satisfactory evidence that the person examined is of the age specified in the certificate and is not incapacitated by disease or bodily infirmity for the proposed employment, he is to grant the certificate.

The certifying surgeon may qualify a certificate by conditions as to the work on which a child or young person is fit to be employed.

For the purpose of examining any process in which it is proposed to employ the child or young person presented to him the certifying surgeon has the same powers as an inspector.

If a certifying surgeon refuse to grant a certificate, he may be required to state in writing the reasons for his refusal.

If the evidence as to age, upon which the certifying surgeon has granted a certificate, is other than a certificate of birth, an inspector may, by notice in writing, annul the surgeon's certificate if he has reasonable cause to believe the real age of the child or young person to be less than that mentioned in the certificate of fitness.

He may be required to examine a child or young person objected to by an inspector as physically unfit for employment in a factory or workshop.

A declaration in writing by a certifying surgeon for the district that he has personally examined a person employed in a factory or workshop and believes him to be under the age set forth in the declaration, is admissible as evidence of the age of that person.

Certifying surgeon's examination described in detail.¹

The following description of the points of observation in the examination of children by one of the surgeons applies in general to the others:

1. Locomotion; by observing the boy's walk as he approaches.
2. Eyesight; by having him spell out words on a card held at a normal distance of 1 foot to 18 inches, first with one eye covered, then the other. He found the children were coached to read the regular card so he now uses a printed list of technical names of diseases, picking out different words and having them read down the column.
3. Arm muscles; general condition; by having him extend his arms at full length, palms down and turn over; to see if the muscles are good; then have him touch his toes with the extended palms.
4. Teeth; to see if generally sound.
5. Neck; presses about the neck to see if there are any tuberculosis glands.
6. Skin; looks for any rash or skin disease.
7. Examines hair and scalp to see if any "nits" or scalp disease.
8. Looks into eyes to see if any squint or disease; and into ears to see that they are free from running or excess wax.
9. Hearing is judged by turning away from the child and asking him some questions in a low tone.
10. Lungs and heart; sounds of are listened to by use of a stethoscope. If there is any indication of anything wrong he takes the boy into a private room and if necessary strips him; and makes a more thorough examination of the lungs. When girls are examined in this way, a forelady may be called in.

In factories which are visited regularly the weight is taken and recorded for him by some one in the office. This certifying surgeon considers that the weights form a basis for judging whether a child's growth has been normal if it appears again for examination (Sir T. E. Flitcroft, M. D., Bolton). Dr. T. W. Heywood, of Darwen, on the contrary takes measurements of the height of all children whom he examines for the same purpose.

Dr. A. Glenn Park, of Bolton, takes the temperature of the children examined and gives particular attention to symptoms of incipient phthisis. Out of 1,400 examinations dating from January to the end of May, 1911, he had reason to reject 65 children or young persons who showed signs of pulmonary tuberculosis. Whenever he finds the slightest elevation of temperature, more particular notice is taken of the lungs. Many cases with a rise of temperature of 1 degree show nothing else and seem to be due to the unfavorable condition of the atmosphere under which work is carried on in the spinning mills.

Dr. J. Brassie Brierley, of Manchester, has found such a large proportion of the children in his district with pediculi that he looks to their hair the first thing, as a rule, not giving much attention to other details. He has succeeded in getting the employers interested in the cleanliness of the workers to the extent that they will undertake the treat-

¹ This section as to practice of surgeons is taken, by permission of the National Child Labor Committee, from a manuscript report by Herschel H. Jones, special agent of the National Child Labor Committee, who investigated the subject of certifying surgeons in England during last summer.

ment of the children for "nits" in the factory or will see that they do it properly at home. Because of this the rejections have been less frequent and they are allowed to continue at work on condition that they be presented again in a week or two.

Practically all of the certifying surgeons pay no attention to weight, height, and chest measurement except in special cases. Though most of them look at children's teeth, they seldom reject a child for bad teeth; they do, however, make treatment for defective teeth in serious cases a condition in granting a certificate.

Dr. Edgar L. Collis, H. M. medical inspector of factories, has been making special studies of factory children and adults in different occupations, in which he has found the weight, chest measurement, height and chest expansion, which he has compared with similar measurements of favored classes.

CONDITIONS IMPOSED.—A study of the reports of the certifying surgeons in the Annual Report of the Chief Factory Inspector for 1912 and 1911 will give more information as to the extent to which different surgeons are making use of their powers imposing conditions with the granting of certificates than possible in this report. (See Table XII, p. 52, Ann. Rpt. 1912.) It is their most important function and the one thing that puts their medical inspection of factory children on a plane which will be difficult to attain in this State [New York] with the limited provision so far made. A boy with bad tonsils or adenoids is not permitted to work where there is dust or fine particles of cotton in the air. A girl with long loose hair or a short-sighted child, or one with St. Vitus's dance is prohibited from working at machinery. A child with heart disease is kept from fatiguing work, or from carrying weights, and an occupation where it can sit down specified. A child short of stature is kept from weaving. Office work only is specified for another. One certifying surgeon showed in his notebook that so far during the year he had required 11 children not to carry more than 10 pounds; one was limited to 14 pounds; another to 50 pounds; a child with rickets not more than 12 pounds, another 14 pounds. With cases of rash or skin disease a certificate is refused for a long enough time to enable the child to remove the defect, when it must appear for reexamination.

The following record of one of the most efficient certifying surgeons in England (Dr. T. W. Heywood) for the year ending December 31, 1912, shows the scope of the points considered better than the above description:

YEAR ENDING DECEMBER 31, 1912.

	Examined.			Rejected.		
	Male.	Female.	Total.	Male.	Female.	Total.
Children or young persons under 14 intended to be employed half time.....	411	424	835	33	47	80
Between 13 and 14 intended for full time.....	463	382	845	11	21	32
Between 14 and 16.....	327	297	624	14	13	27
Total	1,201	1,103	2,304	58	81	139

Rejections.

Defective sight.....	25
Mental defect.....	4
Disease of heart and lungs.....	10
Anæmia.....	15
Disease of skin.....	17
Want of cleanliness.....	47
Under legal age.....	5
Nonproduction of certificate.....	16
Total.....	139

Conditional certificates granted.

Defective vision.....	40
Hanging hair.....	120
Epilepsy.....	5
Loose hair.....	27
Deafness.....	2
Hip disease.....	4
Heart.....	2
Imperfect growth.....	5
Chorea.....	4
Anæmia.....	8
Enlarged tonsils.....	17
Total.....	234

Accidents.

On receipt of a notice of accident from the occupier of a factory or workshop, the certifying surgeon must proceed without delay to the factory or workshop and make a full investigation into the circumstances of the accident; and he must within 24 hours send his report to the inspector for the district.

For the purpose of these investigations the certifying surgeon has the same powers as an inspector, and he also has power to enter any room in a building to which the person killed or injured has been removed.

The fees for certificates of fitness and for examination under special rules or regulations for dangerous trades must be paid by the occupier. Fees for the investigation of accidents, for reexamination, and for special inquiry must be paid by the secretary of state.

The occupier may agree with the certifying surgeon as to the fee to be paid for certificates of fitness, but in the absence of any agreement the fee shall be according to a detailed and specific scale, provided by the law, which certifying surgeons may charge for their services.

PROVISIONS RELATING TO LEGAL PROCEEDINGS, ETC.

All offenses under the factory acts are prosecuted and all fines recovered before a court of summary jurisdiction, in manner provided by the summary jurisdiction acts. Summary orders are made by a similar court in similar manner.

The court must consist of two or more justices of the peace sitting in petty sessions, or of the lord mayor or an alderman within the city of London, or of a metropolitan or borough police magistrate or other stipendiary magistrate in a district in which such magistrate is authorized to act. The occupier of the factory or workshop in which an offense is charged to have been committed, and his father, son, and brother are all disqualified from acting as members of the court trying the offense. So also is anyone who is engaged in, or is an officer of any association of persons engaged in, the same trade or occupation as the person charged with the offense.

The foundation of all proceedings is an "information," which is a written statement of the offense charged. The description of any offense in the words of the acts, or of any order creating the offense, is sufficient in law. No exception, exemption, or qualification accompanying the description of the offense need be specified or negatived. It is sufficient to describe the factory or workshop as a factory or workshop "within the meaning of the factory and workshop acts, 1901 and 1907." The occupier may be described by the usual title of the firm, or by the name of the ostensible occupier employing the persons in the factory or workshop. The information must be laid within three months after the date at which the offense came to the knowledge of the inspector for the district; or if an inquest is held in relation to the offense, then within two months after the close of such inquest, but no information may be laid after the expiration of six months from the commission of the offense.

After the information is laid a summons is issued by the justices stating shortly the matter of such information, and requiring the person charged, or against whom relief is sought, to appear before the justices at a certain time and place. It may be served by mail.

No objection is allowed to the information or summons for any defect of substance or form, but if the person charged is misled by such defect the case may be adjourned to some future day; nor may any conviction or order be quashed for want of form.

Unless otherwise provided in any particular case fines recovered are paid into the exchequer.

If any person feels aggrieved by any conviction or order made by a court of summary jurisdiction, he may appeal therefrom to the next practicable court of general or quarter sessions having jurisdiction in the county, borough, or place for which the court of summary jurisdiction acted, which is held not less than 15 days after the day of the decision complained of. The appellant must, within 7 days of such decision, serve a notice of his intention to appeal and of the general grounds of such appeal, on the other party and on the clerk of the court of summary jurisdiction. Each of these notices must be in writing signed by the appellant, or his agent, and may be sent

by mail by registered letter, in which case it is deemed to be served at the time when it would be delivered in the ordinary course of the mail. Within three days of the day on which these notices are served, the appellant must enter into recognizance (with or without securities as the court may direct, or give such other security as the court may require), to proceed in due course with the trial of the appeal, and to pay any costs which may be awarded against him.

The court which tries the appeal may either confirm, reverse, or modify the decision of the court of summary jurisdiction, or may remit the matter to that court with the opinion of the court of appeal thereon. The court of appeal may also exercise any power which the court of summary jurisdiction might have exercised and make any order in the matter which appears just. Either party may be ordered to pay such costs as the court of appeals shall think fit.

If a party to any proceedings is dissatisfied with the decision of a court of summary jurisdiction on the ground that it is erroneous in point of law or is in excess of jurisdiction, he may apply to the justices to state a special case for the opinion of the high court. If the justices refuse to do this, the high court has power to order a case to be stated. This "case" is a document which sets out the facts of the case as found by the justices (with which finding the high court will not interfere) and the grounds on which the decision is questioned.

The application to state a case must be made and the case stated within seven days of the giving of the decision objected to. Except for the purpose of a special case, no conviction or order of a court of summary jurisdiction, against which there is a right of appeal, may be removed by certiorari into a superior court.

A person charged with any offense under the factory acts is allowed, if he thinks fit, to give evidence on his own behalf.

Any person found in a factory or workshop (except a domestic factory or workshop) is presumed, until the contrary be proved, to be a person employed in that factory or workshop, unless such person is so found at meal times, or (in a factory) while all the machinery is stopped, or while bringing food to a person employed between 4 and 5 o'clock in the afternoon. Yards, playgrounds, or other places open to public view are not, however, to be considered as parts of a factory or workshop within this rule; nor are schoolrooms, waiting rooms, or other rooms in which no machinery is used or manufacturing process carried on.

Whenever the court is of opinion that any child or young person is of the age alleged by the informant, the burden is on the defendant to prove that such child or young person is not of that age. A written declaration by a certifying surgeon, that any person whom he has examined is in his opinion under the age stated in the declara-

tion, is admissible as evidence of that person's age. A previous conviction for any offense under the acts is proved by the production of a copy of the conviction certified under the hand of the clerk of the peace to be a true copy. Every clerk of the peace who has the custody of any such conviction is bound to deliver such copy to an inspector, on request in writing being made, and a fee of 1 shilling (24.3 cents) paid.

Judicial notice is to be taken of regulations for dangerous trades in force under the act of 1901.

Where the occupier of a factory or workshop is charged with an offense, and he alleges that some other person than himself is really in fault, he may lay an information against that other person, and cause him to be brought before the court when the charge is being heard. Then when the offense is proved, the occupier is at liberty to prove, if he can, that he used all due diligence in the matter in question, and that the person charged by him committed the offense without his knowledge, consent, or connivance. If this is proved to the satisfaction of the court, the person charged by the occupier may be convicted, and the occupier exempted from any fine. The other person, when convicted, may also be ordered in the discretion of the court to pay any costs of the proceedings. Another person may, in the first instance, be charged by the inspector with the actual commission of an offense for which the occupier is liable.

In Scotland legal proceedings are different in some respects.

The penalties in legal proceedings are as follows: In case of offenses against the acts the person generally liable is the occupier of the factory or workshop where the offense is committed. But in tenement factories the owner is, for the purpose of certain provisions, substituted for the occupier, and in case of breach of these provisions he is liable to the penalty. And in all cases where the offense for which the occupier is liable has in fact been committed by some other person, that other person is liable to the same penalty as if he were the occupier. Where the occupier is charged with an offense, he may have any other person whom he charges as the actual offender brought before the court, and if he establishes the other person's guilt and his own absolute freedom from fault, the other person is liable to the penalty and the occupier is exempt. The owner or hirer of a machine is liable in certain cases instead of the occupier of the factory.

In case of repetition of an offense, a person is not liable to a larger amount of fines than the maximum fixed by the acts, except in two cases—(1) where the repetition occurs after an information has been laid for the offense; and (2) where the offense consists of employment of two or more persons contrary to the provisions of the acts.

To approve of a school for a child's attendance, where there is no recognized efficient school which the child can attend within 2 miles of its residence;

To appoint certifying surgeons;

To enforce the truck acts;

To enforce the elementary education acts so far as concerns the employment of children; and

To enforce the prevention of cruelty to children act, 1894, if so directed by the secretary of state.

The position of the inspector, as far as relates to the sanitary condition of workshops, is taken by the district council, acting by their officers, the inspector of nuisances and the medical officer of health, who for this purpose have all the powers of a factory inspector.¹

DUTIES, ETC., OF THE OCCUPIERS.

The duties of occupiers, especially those relating to notices, registers, and returns, are thus defined:²

Notices to be exhibited in the factory or workshop;

Registers and lists to be kept in the factory or workshop;

Notices, etc., to be sent.

Notices to be exhibited.—Notices in a factory or workshop must be affixed at the entrance, and in other places where required by the inspector. They must not be removed, and must be so placed as to be easily legible. The obligation to exhibit notices does not apply to domestic factories or workshops, to men's workshops, to docks, wharves, quays, warehouses, or to buildings in course of construction, but in each case an abstract of the applicable provisions of the principal act is officially printed and obtainable.

It is compulsory in every factory and workshop to exhibit notices showing the following matters:

An abstract of the acts in the prescribed form, which include—

The name and address of the prescribed inspector.

The name and address of the certifying surgeon.

The clock (if any) by which times are fixed.

The number of persons who may be employed in each room.

The period of employment and mealtimes, and the mode of employment of children.

Prohibition of employment of children and young persons in certain places.

Prohibition of taking meals in certain parts.

It is compulsory in Scotland and in Ireland to exhibit a notice showing the holidays for the year. This must be done in the first week in January.

¹ The Law Relating to Factories and Workshops, Abraham and Davies London, 1908, pp. 98-101.

² Idem, p. 101.

It is compulsory in certain factories and workshops to exhibit notices showing the following matters:

Special rules or regulations in force for dangerous trades.

Supplementary abstract for humid textile factories—

Cotton cloth.

Other.

Humidity table—

Spinning by French or dry process.

Other humid textile processes.

(In cotton cloth and other humid textile factories.)

Humidity record—

Humid cotton-cloth factories.

Other humid textile factories and works under flax or hemp and jute regulations.

Where it is intended in particular factories or workshops to take advantage of certain special provisions of the acts, it is necessary as a condition of the right to take such advantage to exhibit notices showing the following matters:

Women's workshop system.

Eight hours' employment of women and young persons.

Alteration of system of employing children.

Change of hours or mealtimes.

Fixing or altering holidays.

Thermometer dispensing with daily readings—

Hemp and jute regulations.

Flax regulations.

Intention to act upon a special exception.

Registers and lists to be kept.—These registers and lists must be kept open to inspection by the inspector. They need not be kept in domestic factories or workshops and the only requirement which applies to men's workshops is that relating to outworkers' lists. They are as follows, with their official numbers:

The general register, for factories and workshops in which certificates of fitness are required (37); for other workshops (38), showing the prescribed particulars as to—

- a. The children and young persons employed;
- b. Limewashing;
- c. Every accident of which notice must be sent to an inspector;
- d. Every special exception of which the occupier avails himself;
- e. Certificates;
- f. Industrial poisoning;
- g. Employment in shop;
- h. Steam boilers;
- i. Any other matters prescribed;

Supplementary sheet for certain charitable and reformatory institutions (67);

List of outworkers and their places of employment (44);

School certificates (39);

Overtime register report.

Fruit preserving (740).

Other works (338).

Overtime records (12).

} Wherever overtime is worked.

Required under regulations and special rules—

Anthrax cautionary placard (horsehair).

Health registers (in certain classes of works).

Register of chains (docks).

Schedule B (earthenware and china).

Thermometers notice (hemp and jute and flax).

Notice (felt hats; proofing and store rooms).

List (fruit preserving) persons employed under special exception.

Notices, etc., to be sent.—With four exceptions, all the notices an occupier of a factory or workshop may be required to send are to be sent to the inspector for the district. The exceptions are—

Annual return from certain charitable and reformatory institutions to be sent to the secretary of state.

Return of persons employed (to be sent at the direction of the secretary of state, at intervals of not less than one or more than three years)—

Textile factories.

Nontextile factories.

Workshops.

Humidity notice (to be sent by occupier of cotton cloth or of other humid textile factory to the chief inspector.)

Lists of outworkers and their places of employment in the occupations [in a specified list of trades] (to be sent on or before February 1 and August 1 to the district council.)

The occupier of a factory or workshop is required to serve the following notices on the inspector for the district. In certain special cases the notice must be served also upon the certifying surgeon, the chief inspector of explosives, and the board of trade.

Notice of occupation of a factory or workshop (to be sent within a month after commencing occupation).

Notice of any accident causing death or serious bodily injury (to be sent forthwith).

Notice of certain "dangerous occurrences" (to be sent forthwith).
Notice of poisoning (lead, phosphorus, arsenic, mercury, or anthrax).

Notice of readings of thermometer in cotton-cloth factories (to be sent at the end of each month and a copy kept).

Report of overtime employment (to be sent not later than 8 p. m. on the day of the employment).

Where it is intended in particular factories or workshops to take advantage of certain special provisions of the acts, the occupier must, as a condition of the right to take such advantage, serve notice on the inspector showing the following matters:

Women's workshop system.

Eight hours' employment of women and young persons.

Alteration of system of employing children.

Change of hours or mealtimes.

Fixing or altering holidays.

Thermometer dispensing with daily readings—

Hemp and jute regulations.

Flax regulations.

Intention to act upon a special exception.

The following is a list of the subjects of special exceptions under the acts. In all cases the occupier of a factory or workshop, before availing himself of a special exception, must exhibit a notice of his intention in the factory or workshop, and serve a similar notice on the inspector for the district. In certain cases exceptions are in force arising under certain sections which apply to the subjects under the heading "Period of employment."

List of special exceptions:

Exemption from lime washing, etc.

Five-hour spell in certain textile factories.

Employment during meal hours.

Separation of sets for different meal hours.

Separation of sets for different holidays.

Substitution of another day for Saturday.

Substitution of Friday or Saturday for Sunday in Jewish works.

Period of employment.

9 a. m. to 9 p. m. in bookbinding works and laundries.

Extended periods for women on three fixed days per week in laundries.

Different periods on different days of the week in laundries.

On Saturdays in turkey-red dyeing.

In Jewish works.

In fish curing.

BUDGET, COMPENSATION, PRIVILEGES, ETC.

The total budget for the administration of the factory acts, including central office clerks and pensions, was as follows: ¹

1902.....	£65,788 (\$320,157.30)
1907.....	£80,700 (\$392,726.55)
1912.....	£98,926 (\$481,423.38)

Owing to the increase of the staff for 1913, the budget for this year will exceed £100,000 (\$486,650).

Nowhere on the continent do factory inspectors receive as high salaries as they are paid in England. In respect to the salaries paid, England is the most liberal of all countries.

The salary of the chief inspector is, according to the original schedule, £1,200 (\$5,839.80) per annum, but this has been increased by special arrangement in the case of Sir Arthur Whitelegge, the present chief inspector, to £1,500 (\$7,299.75) per annum. The two deputy factory inspectors receive £750 to £900 (\$3,649.88 to \$4,379.85). The following table shows the minimum and maximum salaries of various grades of inspectors with a yearly increase:

SALARIES AND YEARLY INCREASE OF INSPECTORS.

Grade.	Minimum.	Maximum.	Yearly increase.
Medical inspectors.....	\$2,423.25	\$3,893.20	\$121.66
Superintending inspectors.....	2,919.90	3,649.88	121.66
Principal lady inspector.....	1,946.60	2,433.25	-----
Inspectors in grade 1A.....	1,459.95	2,676.58	97.33
Inspectors in grade 1B.....	1,459.95	2,019.60	73.00
Senior lady inspectors.....	1,459.95	1,946.60	73.00
Lady inspectors.....	973.30	1,459.95	48.67
Inspectors in grade 2.....	973.30	1,459.95	48.67
Assistant inspectors (seniors).....	729.98	1,216.63	24.33
Assistant inspectors (juniors).....	486.65	973.30	24.33

Inspectors are allowed certain amounts for traveling expenses, the amounts differing according to the class and grade of inspectors. All inspectors, except assistant inspectors, are entitled to charge first-class railway fare while on duty. They may also hire cabs and charge for these if the distances to be traveled are longer than 1 mile. Wherever inspectors are absent from home on duty they receive at the rate of £1 (\$4.87) per night for the chief superintendent and senior inspector, and 15 shillings (\$3.65) a night for all other inspectors. Assistant inspectors are entitled to charge only third-class railway fare and are allowed 10 shillings (\$2.43) per night when absent from home on duty. All inspectors are allowed one-third of the night allowance for every day requiring more than 10 hours absence from home.

¹ Annual Report of the Chief Inspector of Factories and Workshops, 1912, p. 265.

Inspectors are entitled to 48 full days vacation in the year, outside of the regular holiday vacations. They may be absent two days on account of sickness without presenting a certificate from a physician. For all sickness longer than two days, a medical certificate must be presented. In case an inspector is sick for six months during two years, he is allowed full pay; in case he is sick longer than 12 months during 4 years, his case is presented for investigation to the Home Secretary.

Inspectors are not allowed to engage in any other occupation. Lectures and articles written by inspectors must be submitted to the chief inspector for approval.

After the inspectors reach the age of 60, they may retire upon their request and the consent of the Home Secretary. At the age of 65 their retirement is compulsory. The inspectors may also be retired for disability before the age prescribed. Pension may then be given, not as a matter of right, but by the consent of the Home Secretary. Pension is hardly ever given before the expiration of 10 years of service. The amount of pension given upon retirement is one-eightieth of the average salary of the last three years for each year of service. To this annuity is added a lump sum amounting to the salary of one year. For example, if an inspector has been in the service of his department for 20 years and has been paid at the rate of £800 (\$3,893.20) per year during the last three years of service, he receives upon his retirement twenty-eightieths, or one-fourth, of £800 (\$3,893.20) or an annuity of £200 (\$973.30) during his life, with an addition of £800 (\$3,893.20) given to him upon the day of his retirement.

PERSONNEL, QUALIFICATIONS, ETC.

In the brief review of the historical development of the administration of English labor laws, abundant allusion has been made to the high character of the factory inspectors charged with the administration of the factory and workshop acts. The position of factory inspector was always considered of very great importance and only men of high caliber, prominent social position, strong moral force, and of great executive ability were appointed from the beginning to act as inspectors. Having selected for first inspectors men of the caliber of Horner, Saunders, Howell, Baker, and Redgrave, the Government could not very well lower the standard in the subsequent appointments either of the inspectors or of the subinspectors. The high salaries paid to the first inspectors were certainly commensurate with their high standing; but even with the low salaries paid by the Government during the first several decades to the subinspectors, the Government was fortunate in obtaining the services of a very high class of persons, especially after the rule was made that retired

officers in other departments might draw their pension and be appointed as subinspectors with full salary. Among the subinspectors were a number of physicians and surgeons (Inspector Robert Baker was one of them) and there were also a large number of retired army and navy men. A number of the inspectors came from the ranks of political and social workers, were previously members of various parliamentary commissions, and achieved a certain position and experience in previous executive and important occupations.

Owing to the fact that for many years after 1833 the main work of the inspectors was the protection of children, young persons, and women, and owing to the fact that it is within a comparatively late date that the factory and workshop acts have been extended to various dangerous trades, and that the work of inspectors has been greatly taken up with the prevention of accidents and special hazards to life and limb of workers, the personnel of the inspectors was selected more from a social and intellectual class than from a technically educated class, and we find, therefore, among the factory inspectors in England many men who had no special technical training.

PREVIOUS OCCUPATION.

In 1907 the Government issued a special bulletin giving the previous occupations of the factory inspectors. This material, as summarized by the British Association for Labor Legislation, is as follows:¹

PREVIOUS OCCUPATION OF FACTORY INSPECTORS, 1907.

Previous occupation.	Inspectors.	Assistants.	Women inspectors.
Sanitary departments of local authorities.....	4	4	5
Secretaries or clerks in Government offices for royal commission.....	6	2	3
University degree.....	7		
Teachers and lecturers in:			
Science, hygiene, engineering.....	10		1
Subjects not stated.....	4		
Army.....	2		
Law.....	1		
Engineers.....	43	4	
Manufacturers, managers, etc.....	18	2	
Workmen; trade-union secretaries, etc.:			
Industrial occupations.....	8	13	
Clerks, etc., in industrial and commercial establishments.....		11	
Secretaries, etc.....	2		1
Analysts, chemists, bacteriologists, etc.....	6		1
Building surveyors.....		1	
Officers of charitable institutions.....			1
No return.....			1
Total.....	111	40	13

RÉSUMÉ OF QUALIFICATIONS OF PERSONNEL.

The following extracts from the speech made by the Home Secretary, Mr. McKenna, on July 23, 1913, during the parliamentary debate upon the budget, give some indication as to the qualifications

¹ Report on the Administration of Labor Laws in the United Kingdom, a pamphlet of 47 pages published by the British Association for Labor Legislation, compiled by Sophy Sanger, honorary secretary, 1908, p. 39.

of some of the recent appointees in the factory inspection department. He replied to a charge made by the parliamentary representatives of the laboring class that the factory inspectors belonged to a special social grade and to superior social classes. His remarks were as follows:¹

Of the factory inspectors of the higher class we have to-day very nearly half of the whole coming from the public elementary schools of the country. They are men who have risen by sheer force of merit. I may say that in more recent years more than half were at one time boys in elementary schools. I would like to give the committee some exact details in recent years as to who those men are who are supposed to have a social "smack." They are, in fact, men who have been selected because of the ability they have shown, not because of the class from which they have sprung, and because of the experience they have had in factories and workshops.

I will take the last five examinations. Nearly half of the whole of the candidates who received nominations for examination came from public elementary schools or county schools. In 1908, out of 17 candidates who competed, all had long factory or engineering experience, except three. One of the three had no experience, but had exceptional educational qualifications, having passed from an elementary school to the county school, and from thence by scholarship to the University of Wales, where he obtained several scholarships and exhibitions. The second had long experience in teaching, having passed from a national school by means of scholarship to Leeds University. He also graduated at London University. The third had experience in teaching physics, having passed from an elementary school by means of a scholarship to the University of Wales, in which he was a graduate. He was a graduate also of London University, and obtained a diploma in electrical engineering in University College, Cardiff. Those were the only three who had not had practical personal experience. The remaining 14 had long factory and engineering experience before they were admitted. * * *

In 1909, of the 28 candidates nominated 3 had no practical experience in factories, the first of those 3 had an exceptional educational career at Aberdeen University, obtaining the degree of M. A. with honors in mathematics and natural philosophy, and the degree of B. Sc. in chemistry, mathematics, and natural philosophy. The second, after experience in business, was engaged in teaching chemistry and physics. He held the degree of B. Sc. of Glasgow University, and obtained certificates from Glasgow University in technological subjects. The third had a distinguished educational career at Oxford and experience in administration as organizing secretary of the Christian Social Union. Those are 3 out of the 28, and the other 25 had a long experience in factories and workshops. In 1910, of the 19 candidates nominated, all had long and practical experience except 2. In 1912, of the 33 candidates nominated, all had good practical experience except 4, and in the present year 31 candidates have just been nominated to compete for about 5 vacancies. The examination has not yet been held. Of these all have had good practical experience except 2. Of the 2, one has been engaged in

¹ Parliamentary Debates (Official Report), Fifth Series—Vol. LV, House of Commons, 23 July, 1913, pp. 2096-2098.

teaching under various school boards in Scotland, but his educational experience has been exceptional. He held the degree of M. A. from Aberdeen University with first-class honors in mathematics and natural philosophy; he has gained prizes in political economy, and has also received a Carnegie scholarship in economics. * * * The second of the two has been engaged in research at the Royal College of Science. He was educated at a secondary school and passed by means of scholarship to the London University, where he obtained a degree of B. Sc., with first-class honors in physics. He also holds a number of certificates in various technological subjects.

QUALIFICATIONS OF WOMEN INSPECTORS AND ASSISTANT INSPECTORS.

The qualifications of the women inspectors are as high as, and in former times were perhaps higher than, those of the male inspectors. Some of these lady inspectors have a university degree, while others come from the ranks of social workers, former sanitary and health inspectors for local authorities, etc.

The assistant inspectors are appointed from a class of workers who have had previous experience in factories and workshops, and who are not supposed to have such a high educational standard as the other inspectors. There is no regular promotion from the class of assistant inspectors to the various grades of regular inspectors. Several assistant inspectors have within the last few years been appointed as inspectors, but this was done after they had been regularly nominated and passed their examinations for the inspectorships.

Closely working with the factory department and greatly aiding this work of the administration of the Factory and Workshop Acts, are the large number of certifying surgeons of whom there are at present 2,279. These certifying surgeons are appointed by the chief factory inspector and are supervised by him and by the medical factory inspectors. They are physicians and surgeons, graduates of regular medical institutions, and do not receive a salary, but fees for each specific performance.

SELECTION, CIVIL SERVICE EXAMINATIONS, ETC.

Previous to 1850 inspectors and subinspectors were appointed by the Home Secretary without examination. In the report of the inspectors in 1850 the first mention is made of the examination of all subinspectors, of an age limit of candidates between 25 and 40, and of giving examinations to candidates in handwriting, arithmetic, history, geography, political economy, English composition, and in reports. Since that time civil service examinations have been held from time to time, and while appointments have been made outside of the civil service, the bulk of appointments were made from the list of those successfully passing civil service examinations.

At present candidates for the factory inspectorships must pass several stages—first, nomination; second, first examination; third,

probationary service of two years; fourth, second examination after the probationary period.

Candidates for nomination for factory inspectors have to make a formal application and present it with any testimonials which they wish to submit to the private secretary of the Home Office in London. In this application they have to state their names, addresses, date and year of birth, particulars of their education and scholarship, and full particulars as to their past and present employment. These applicants are then personally interviewed by the chief inspectors or by the superintending inspectors, and sometimes by the district inspectors; and whenever a vacancy occurs selection is made from the list of applicants and a list is made of the nominations for the candidates for examination.

The nominations are never made except when an examination to fill a vacancy is about to be held. Only a very limited number of applicants, "those who appear after careful consideration and inquiry, to be the best qualified in every way for the position, can be given the opportunity to compete." Nominated candidates receive not more than one month's notice of the examination. The prescribed age for candidates at the time of examination is between 21 and 30 years, but an extension up to 38 is allowed in the case of a candidate who (a) for the last seven years has been occupied in a factory or workshop or in engineering work as master, manager, foreman, workman, or apprentice, and has thereby acquired practical acquaintance with industrial relations and conditions; or (b) has served as a factory inspector's assistant, with a certificate of the civil service commission from a time when he was under 30. The candidate must pay a fee of £3 (\$14.60) for the examination.

The following is a syllabus of the obligatory as well as optional subjects for the civil service examination:

SUBJECTS FOR EXAMINATION.

A.—Obligatory subjects.

1. English composition.
2. Arithmetic.

B.—Optional subjects.

3. English literature.
4. English history.
5. General modern history.
6. French or German or Italian.
7. Mathematics.
8. Economics (including knowledge of the history of industry in modern times).
9. Chemistry.
10. Physics including mechanics.
11. Practical mechanism and industrial machinery.

NOTE.—Four only of the optional subjects may be offered. Any candidate who does not satisfy the civil service commissioners in three of them will be thereby disqualified.

SYLLABUS.

A.—Obligatory subjects.

1. English composition: Candidates will be tested by precise writing as well as by an essay.

2. Arithmetic: First four rules, simple and compound, including English and metrical weights and measures, reduction, vulgar fractions and decimals (excluding recurring decimals), and the preparation of percentage and other tabular summaries.

B.—Optional subjects.

3. English literature: From Shakespeare to the death of Wordsworth.

4. English history: 1066 to 1880.

5. General modern history: 1519 to 1871.

NOTE.—In the papers set upon each of these three subjects a liberal choice of questions will be allowed.

6. French, German, or Italian: Translation, composition, conversation.

7. Mathematics: Algebra—Evaluation of formulæ for numerical values, graphs, slope of a graph and rate of increase of function represented, solution of equations by calculation and by graphs, indices, and logarithms. Geometry—The fixing of the position of a point (in a plane or in space) by coordinates, the conditions to fix figures in shape, size, and position (only rectilinear figures in shape). Properties of rectangular solid, rectangle, parallelogram, triangle, sphere, circle, and other simple figures. Area of an irregular figure by squared paper or by approximate division into quadrilaterals or triangles, volume of an irregular solid by first finding areas of a number of parallel sections. Similar figures, proportion to be treated algebraically, and all quantities to be considered mensurable. Loci, curves determined by various conditions, e. g., motion of a point of linkwork, or conditions given by equations between coordinates. Projection of straight line, plane figures, cylinder, cone, prism; interpenetration of these figures; sections; projection of simple helix and square-threaded screw. Trigonometry—The solution of triangles, and allied problems.

8. Economics, including knowledge of the history of industry in modern times: The economics of industry as treated in the ordinary textbooks. The history of the chief forms of modern industry, and the outlines of legislation affecting the working classes in the last two centuries, with especial reference to the United Kingdom.

9. Chemistry (inorganic): In this subject there will be a written paper and an oral and practical examination. The latter will include, among other things, such qualitative and quantitative analysis as has a bearing upon the administration of the Factory Act (e. g., the detection and estimation of lead, arsenic, mercury, and other poisonous metals used in manufactures, and the detection and estimation of carbonic acid, carbonic oxide, nitrous fumes, and other gas, vapors, and impurities in air, etc.).

10. Physics (including mechanics): The fundamental principles of mechanics; heat; light; electricity and magnetism; treated from the experimental standpoint. In this subject there will be (1) a written paper and (2) a practical examination.

11. Practical mechanism (including mechanical drawing): In this subject there will be a written examination including (a) an elementary, (b) an advanced, paper. Candidates who take this subject must pass in the former, although more weight in the competition will be attached to the latter. There will also be an oral and practical examination. The latter will include, among other things, questions upon the construction of machinery.

The knowledge of languages, especially French and German, is very advantageous for the candidates and is practically required for the examination. The examination usually takes place in London where the candidates are required to appear. The examination lasts about five days, an examination lately being held on Tuesday, Wednesday, Thursday, Friday, and Saturday of the week, each day from 10 a. m. to about 5 p. m., with an interval for lunch. The papers are rated according to a certain system.

The examination is not only written but also oral. Oral tests are given in French; advanced mechanics, chemistry, and physics. The rating is not only on the answers to questions, but also on the general appearance of the candidate. Such tests may last about an hour.

The examination for women inspectors does not differ very much from the examination for men inspectors except that there is some change in the prescribed age for candidates, which is between twenty-five and forty, and also in the optional subjects, which differ somewhat from those in the examination for men inspectors. Physiology and bacteriology, including a laboratory test, are included among the optional subjects, and mechanics and chemistry may be omitted.

The notice to the women candidates for inspector also states that a physical examination is required, that a fee of £2 (\$9.7330) is paid for the examination, and that a deficient sense of smell must be held to disqualify a candidate for this appointment. The blank also states that women inspectors must resign on marriage, unless for any special reason the Home Secretary desires to retain their services. They may be called on to retire at 60 years of age and must retire in any case at 65.

The examination of assistant inspectors differs from the other examinations.

The following are the subjects for examination, in all of which candidates must qualify:

1. Spelling; handwriting as tested by dictation.
2. English composition (ability to write a simple and intelligible report to a superior officer).
3. Arithmetic (first four rules, simple and compound).
4. An elementary knowledge of the principal provisions of the law relating to workshops.

Candidates are warned against seeking political or social influence, which is said not only to be against their interest but to prejudice rather than to assist them.

The prescribed age for candidates is between 21 and 40. The fee for the examination is 10s. (\$2.43). A deficient sense of smell disqualifies candidates for appointment. While it is possible for an assistant to become an inspector, there is no ready promotion among the two classes of inspectors; a new nomination by the Home Secretary and a very difficult examination are necessary. During the last year three assistant inspectors were nominated and successfully passed as inspectors.

These assistants are taken from the class of persons who have had practical experience as factory workers and their personal appearance as well as their past work is of very much importance in securing their nomination as well as their appointment.

APPOINTMENTS.

The successful candidates are first appointed and assigned to some district as general inspectors in the second class and their appointment is subject to two years' probation. At or before the

end of this time, the inspector is required to pass a further examination, which is qualifying only, not competitive, in factory law and sanitary conditions. This examination is held by a committee appointed by the chief inspector and is wholly devoted to subjects of practical work and application of the factory and workshop acts as well as to the knowledge of the candidate of industrial hygiene and factory sanitation. The inspector who fails to pass this second examination is not continued in the service unless the Home Secretary for special reasons allows him another trial.

After the probationary period the inspector's tenure of office is secure and it is very seldom that an inspector is discharged unless for a very serious cause. There are no fines or petty charges put against the inspector and the relations between the superiors and the inspectors are very cordial and friendly. The increase of salary is, as has already been indicated, annual, and his promotion steady, although both depend much on his good conduct and efficient service. Both the annual increase and promotion depend upon the full recommendation of the superiors and are omitted if this recommendation is withheld.

WORK OF THE FACTORY DEPARTMENT.

The area covered by the United Kingdom is 120,651 square miles. In this area in 1901 there were living 41,458,721 persons; at present the population exceeds 45,000,000.

The latest statistics as to persons employed in factories and workshops for the year 1907, are presented in Table III, page 289, of the Annual Report of the Chief Inspector of Factories and Workshops, 1911. According to this table there were then the following number of persons working under the factory act:

EMPLOYEES COVERED BY THE FACTORY ACTS, UNITED KINGDOM, 1907.

	Males.	Females.	Total.
England and Wales.....	2,726,214	1,500,836	4,227,050
Scotland.....	423,392	236,664	660,056
Ireland.....	125,262	114,741	240,003
Total, United Kingdom.....	3,274,868	1,852,241	5,127,109

The following table shows the number of factories and workshops in each of the divisions:¹

FACTORIES AND WORKSHOPS COVERED BY THE FACTORY ACTS, UNITED KINGDOM, 1912.

Division.	Factories.	Workshops.
No. 1.....	26,544	47,887
No. 2.....	15,949	26,157
No. 3.....	20,253	24,992
No. 4.....	19,825	17,054
No. 5.....	18,987	20,166
No. 6.....	15,669	19,319
In institutions (special districts).....	48	122
Total.....	117,275	155,697

¹ Annual Report of the Chief Inspector of Factories and Workshops, 1912, p. 240, Table 2.

The administration of the factory department is therefore extended over 117,275 factories and over 155,697 workshops. Included in these are a large number of establishments working under special rules and regulations and needing a special inspection besides the regular inspection by the district inspectors of the department. Of the plants under special regulations there are 55,028 works, 4,208 docks, and 4,555 warehouses. There were also in 1912, 315 textile factories where humidity records had to be kept, according to section 96 of the act. Besides there were under the jurisdiction of the inspectors of particulars, 7,812 textile factories, 1,671 textile workshops, and 26,843 nontextile shops.¹

The inspection work of the department consists in visits or inspections. During 1912 the inspectors made the following effective visits:¹

Factories.....	163,698
Workshops.....	221,061
Other places under the act.....	19,963
Places not under the act.....	25,266
Total visits.....	429,988

Of these visits, 44,042 were made before or after legal hours; 177,335 factories and workshops were visited once and 57,896 were visited more than once.²

EXTENT OF WORK.

Of course, the work of the department can not be judged merely by the number of visits made by the inspectors. Besides the actual work of visiting a factory or workshop, factory inspection consists also in a number of other functions, which, while not finding their way into the statistical data, are nevertheless of much importance in the work of administration. Among such may be included the following: Interviews with employers; talks with superintendents and managers of workshops; interviews with workers; inspection of registers, notices and various forms found in the factory or workshop; verbal or written caution given by the inspector to the owners in the case of remediable violations; advice given as to new plants and establishments; reports to superiors on various industrial conditions; visits to courts, offices of the superintending inspectors, etc.

Besides the general work of the district inspectors, account must also be taken of the special work by the local authorities, women inspectors, special inspectors, and of the certifying surgeons.

¹ Annual Report of the Chief Inspector of Factories and Workshops, 1912, p. 265, Table 30.

² Idem, p. 265, Table 30.

WORK OF THE LOCAL AUTHORITIES.

According to an extract from the Annual Report of Medical Officers of Health, embodied in a report of the chief inspector¹ there were made by the various officers of the local authorities not less than 503,514 inspections, divided as follows:

Factories, including factory laundries.....	56,992
Workshops, including workshop laundries.....	389,546
Work places, other than outworkers' premises.....	56,976

Besides these inspections the officers of the local authorities also made visits to 12,111 employers and 103,958 outworkers.

The result of the work of the officers of the local authorities may partly be judged by the written notices sent by them, of which there were 28,762, and by the 44 prosecutions instituted by them. Besides these there were 8,378 notices served and 96 prosecutions for failing to keep or send lists of outworkers. As a result of the inspection of outworkers, there were 2,478 instances where outwork was found to be in unwholesome premises and 768 where it was done in premises infected by contagious diseases.

The violations or cases of defects found by the inspectors for the local authorities are classified in the following table from which may be judged the exact subjects which are under the supervision of the local authorities:²

CASES OF DEFECTS FOUND BY FACTORY INSPECTORS, UNITED KINGDOM, 1912.

Particulars.	Found.	Remedied.	Referred to factory inspectors.	Prosecuted.
Nuisances under the public health acts:				
Want of cleanliness.....	22,148	21,741	41	6
Want of ventilation.....	1,918	1,792	14	1
Overcrowding.....	671	665	3	
Want of drainage of floors.....	617	599	2	1
Other nuisances.....	17,086	16,557	17	16
Sanitary accommodation:				
Insufficient.....	1,992	1,630	19	9
Unsuitable or defective.....	12,435	11,382	31	7
Not separate for sexes.....	811	744	6	
Offenses under the factory acts:				
Illegal occupation of underground bakeries.....	47	28	2	1
Breach of special sanitary requirements for bakehouses.....	3,446	3,373	10	5
Other offenses (excluding offenses relating to outwork).....	1,088	934	119	
Total.....	62,259	59,445	264	46

The workshops on the registers at the end of the year were as follows:³

England and Wales.....	216,874
Scotland.....	27,345
Ireland.....	5,277
Total.....	249,496

¹ Annual Report of the Chief Inspector of Factories and Workshops, 1912, p. 246, Table No. 8a.

² Idem, p. 246, Table 8b.

³ Idem, p. 247, Table 8d.

WORK OF THE WOMEN INSPECTORS.

The number of visits made in 1912 by the staff of the women's department was 9,205, of which there were 5,204 in factories, 3,538 in workshops, and 463 in other places under the act; the number of places, not under the act, visited was 2,531; the miles traveled 106,965; the women inspectors also attended courts 176 times and attended 9 inquests; they also had 465 interviews at the local offices with workers, employers, and others.¹ Of the accidents reported, affecting women and girls in laundries and wearing apparel factories, which were assigned for investigation to the women's branch, there were 707. They also investigated 77 cases of industrial poisoning; contravention notices issued to occupiers numbered 7,085; in addition to these, 1,082 notices were issued to sanitary authorities; there were also 78 prosecutions instituted against 69 occupiers.

Most of the senior inspectors and several of their staff as well as members of the "floating" staff centered in London have made various special inquiries. One inspector made an inquiry² for the Home Office among theatrical costumers and in theatrical wardrobe departments regarding fireproofing of costumes and accessories, eliciting information of practical importance; she also conducted with the aid of another inspector inquiries bearing on factory act administration in the fish-curing industry and on conditions for girls in the tin-box trade. Another inspector was called on to give evidence to the Irish linen trade committee and the committee on humidity in flax mills and linen factories, both involving special work; she also made an inquiry into the effect of intense light and heat on the eyes and general health of workers in incandescent electric lamp factories and into the health among aerographers in Christmas card factories. A number of other inquiries were conducted by the other inspectors.

This department received 1,870 complaints, of which 896 were upheld; of the complaints received 637 were anonymous, 475 signed by workers or their friends, 201 by public officials, and 557 by various organizations.³

WORK OF INSPECTORS OF TEXTILE PARTICULARS.

The five inspectors in this special branch received and investigated 169 complaints in 1912, of which 95 were verified; 907 notices of contravention were served upon employers.⁴ The number of registered factories under this particular act was 7,812; the number of workshops, 1,671. Inspections were made in 6,070 factories and 849 workshops. One inspector made personally 1,012 visits to factories and 161 visits to workshops.

¹ Annual Report of the Chief Inspector of Factories and Workshops, 1912, p. 114.

² *Idem*, p. 115.

³ *Idem*, pp. 119 and 120.

⁴ *Idem*, p. 119.

WORK OF INSPECTOR FOR DANGEROUS TRADES.

The number of works under regulations and special rules at the end of the year was 61,449. The one inspector for dangerous trades not only made numerous inspections and inquiries, but also during the year attended a number of congresses as a representative of the department and visited a number of museums of safety. One inspector was given to him for assistance in routine work of the office during the year as well as to make some special inquiries.

Special inquiries were made into bronzing, humidity in cotton cloth factories, lead smelting, pottery regulations, self-acting mules, flax spinning and weaving, chemical manure works, and many other specially dangerous industries. A special inquiry was also made in the investigation of carbonaceous dust explosions. Two hundred and five samples of dangerous materials were submitted to the principal chemist of the Government laboratory for analysis, and there were 2,459 air samples collected by the inspectors.

WORK OF THE ELECTRICAL INSPECTOR.

The report of the electrical inspector of factories deals with accidents at electrical generating stations and substations, of which there were 283, and the investigations made by him into the causes of these accidents.

WORK OF MEDICAL INSPECTORS.

The work of the medical inspectors consists in the pursuance of special investigations, in the visits made on special complaints, and in the various investigations of industrial poisoning, etc. The chief medical inspector was also reappointed as member of the departmental committee on compensation for industrial diseases.

Dr. Collis, assistant medical inspector, made a number of special inquiries; gave evidence before the royal commission on metalliferous mines and quarries; made important investigations on the special relation of silica dust to the occurrence of tuberculosis; he was also a member of the committee appointed to consider the use of lead paint in the house and coach painting industries; he also collaborated with another investigator on the conditions of employment in the manufacture of tin plates; he conducted an inquiry into an outbreak of unusual illness, accompanied by asthma and persistent coughing, among weavers in Lancashire; and prepared a very valuable report on the effect of dust upon those employed in grinding metals; he also paid many visits to cotton mills to insure the completion of installations for the removal of dust generated in the processes of stripping and grinding cotton-carding machines; he also visited factories in various parts of the country in connection with the observ-

ance of the regulations for lead smelting, vitreous enameling, casting of brass, heading of yarn, and tinning.

The medical factory inspectors also have general supervision over the work of the certifying surgeons.

WORK OF CERTIFYING SURGEONS.

There were in 1912 2,279 certifying surgeons, of whom 2,001 furnished reports. The following statement shows part of the work accomplished by them:¹

Medical examinations for certificates of fitness:

Under 14.....	42, 203
Between 13 and 14 intended to be employed full time.....	91, 222
14 to 16.....	373, 301
Total.....	<u>506, 726</u>

Of these examinations the number which resulted in certification and rejection are shown, by sex, as follows:

Certified:

Males.....	237, 058
Females.....	254, 327
Total.....	<u>491, 385</u>

Rejected:

Males.....	5, 317
Females.....	10, 024
Total.....	<u>15, 341</u>

Accidents reported to certifying surgeons:

Fatal.....	1, 260
Nonfatal.....	49, 936
Total.....	<u>51, 196</u>

Cases of industrial poisoning reported by certifying surgeons..... 656

Besides these there were the following number of examinations made by certifying or appointed surgeons in dangerous trades:

Examinations:

Males.....	189, 430
Females.....	41, 996
Total.....	<u>231, 426</u>

Persons suspended from work:

Males.....	583
Females.....	98
Total.....	<u>681</u>

¹Annual Report of the Chief Inspector of Factories and Workshops, 1912, pp. 244, 245, 248, 249.

PROSECUTIONS, CONVICTIONS, AND PENALTIES.

The work of the inspectors resulted in a large number of prosecutions, the total number of which was 2,674, resulting in 2,521 convictions. The amounts of penalties collected were as follows:¹

OFFENSES, CONVICTIONS, AND PENALTIES COLLECTED, UNITED KINGDOM, 1912.

Offense or requirement—	Cases.	Convictions.	Penalties.	
			Total.	Average.
As to:				
Forms.....	276	271	\$300.25	\$3.65
Sanitation.....	113	98	608.20	6.16
Safety.....	236	227	3,125.35	13.77
Employment.....	2,013	1,928	6,366.96	3.31
Particulars.....	10	10	61.56	6.16
Obstruction of inspector.....	7	6	49.88	8.31
Truck acts.....	19	18	120.57	6.60
Total.....	2,674	2,521	11,226.77	4.46

Of the cases in which there was no conviction 36 were withdrawn on payment of costs, 42 were withdrawn for amendment on alternative charge, while only 75 were dismissed. The largest number of prosecutions were in the fifth division, in which Manchester is located, where 814 cases were prosecuted; the smallest number were in the third district, where Birmingham is located, where only 274 prosecutions were had.

The number of prosecutions have greatly decreased, according to the report of the chief inspector²—in 1902, 3,426; 1907, 4,474; 1912, 2,674.

METHODS OF INSPECTION.

The organization of the department of factory inspection in England is, as has already been indicated, highly centralized. The department is under the sole jurisdiction of the Home Secretary, and its destinies are guided by a chief factory inspector, who is the head of the department, and who is responsible for the work of the department to the Home Secretary and to Parliament.

DUTIES OF CHIEF FACTORY INSPECTOR.

The chief factory inspector renders an annual report of the work of his department to the Home Secretary, and his report is submitted to Parliament and is usually discussed by the members of Parliament when the question of the budget of the department comes up.

The chief inspector is assisted in his work of supervision of the department by two deputies. All the reports of the superintending inspectors on the conditions of their districts are sent weekly to the chief factory inspector; also all the reports of the principal lady

¹ Annual Report of the Chief Inspector of Factories and Workshops, 1912, pp. 279, 280.

² Idem, p. 265.

inspector as well as the reports of the special inspectors. Besides this, the chief or his deputies are consulted in all matters regarding policy, and in almost all important matters arising in their respective districts or functions throughout the service. All promotions of inspectors are passed upon by the chief and his deputies, and all increases in salaries must have the approval of the chief inspector. The chief inspector has his office at the Home Office in London, where are also located the very extensive library and archives of the department.

The functions of the chief inspector in relation to the district and other grades of inspectors are assumed by the superintending inspectors. Of these, as has been seen, there are six besides the principal lady inspector. These seven inspectors have charge of their separate sections of the country, except in the case of the principal lady inspector, who is not assigned to a special district, but to whom special functions are assigned.

DUTIES OF SUPERINTENDING INSPECTORS.

The superintending inspectors are responsible for their divisions to the chief factory inspector; they send him weekly reports of the work in their respective divisions and have the sole supervision of the inspectors in their districts, except as to matters of promotion, increases of salaries, and certain other important matters of policy upon which they usually seek and get the advice of the chief inspector or of one of his deputies. The superintending inspectors have yearly conferences with the chief inspector, when matters of policy and departmental matters, etc., are discussed. Districts are assigned to the district inspectors by the superintending inspectors with the consent of the chief inspector. As a rule, districts are assigned only to inspectors of grade 1A.

DUTIES OF DISTRICT INSPECTORS.

District inspectors are under the jurisdiction of the superintending inspector, and make their reports to him and consult with him in all important matters. They must get the sanction of the superintending inspector in important prosecutions. They send him weekly reports as to their work and whereabouts, expenses, etc., as well as the reports of the work of their subordinates.

To each district inspector are assigned several inspectors of grade 1A, grade 1B, and grade 2; also several assistant inspectors, the number of the various inspectors assigned depending upon the size of the district and its importance. Some districts may have only one assistant inspector besides the district inspector; others may have four or five to assist the district inspector. Within the district there are as a rule no territorial subdivisions. The district inspector has charge of the whole district and assigns his assistants to various functions according to their experience, ability, etc. Those

inspectors who have a special knowledge of engineering are usually assigned to factories where safeguarding of machinery is an important consideration. Assistant inspectors are usually assigned to the supervision of workshops, to the enforcement of the Sunday law, detection of "nibbling," which is the practice by some dishonest manufacturers of starting and closing their work five or ten minutes before or after the proper period, thus gaining from ten to twenty minutes daily from their workers without paying them for it. As a rule, district inspectors are allowed to remain in the districts for comparatively long periods in order to familiarize themselves with the conditions of the districts, and thus make themselves more competent to deal with different conditions and problems. District inspectors are transferred, however, when the chief inspector decides that such transfer is for the good of the service, and upon their own request, when such request is based upon important considerations.

FORMS FILLED OUT BY INSPECTORS.

Inspectors are supposed to fill out certain forms indicating the amount and kind of work which they have done during the week. One of the reports is Form 211 entitled "Weekly report of visits." In this report inspectors are supposed to indicate the name and address of the manufacturer of each plant they visited, also the action taken. They also make a weekly summary on Saturday for the week ending that day. This report is forwarded on or before Monday of the following week. In this weekly summary they make an entry of all official occupation and absence from duty. Entry is made by each date and day of the week and gives the number of visits to factories, workshops, other places under the act, places not under the act, number of days' inspection, other active work, office work, committee work, or leave of absence.

They also give a summary of the number of works visited, including those found closed, the time during which the works were visited, whether during meal times, before or after legal hours, on Sundays or holidays. They also give the number of interviews at the office, attendance at inquests, attendance at court, the number of miles traveled, and the cost of official traveling.

The district inspectors collate the data gained from the previous report for all the inspectors upon a special form in which all these data are given for all the inspectors in their district and sent to the superintending inspectors weekly.

EXPENSE ACCOUNTS.

Each inspector is also supposed to give a weekly account of his traveling expenses and subsistence allowance on Form 333 and a monthly account on Form 334. These give a detailed itemized

account of the various conveyances used, the number of miles traveled, the charges for railroad fare, for cab hire, for incidental expenses, and for subsistence allowances. These accounts are audited by the district inspector for his staff and by the superintending inspector for all the districts in his division. Account must also be given for clerical hire, office expenses, and prosecution expenses on separate blanks furnished by the department.

The district inspector is usually allowed the expenses of renting a suitable office in his district, equipping the same, and engaging clerical assistants. All the expenses for the above must be accounted for, and are audited by the superintending inspectors. Should the inspectors take part in any committee work, they are also supposed to make a special report on a special Form 345 of the exact work they have done. There are also special blanks for applications for leave and for various other communications with the heads of the department.

The vacation allowed inspectors may be taken by them at one time or may be subdivided throughout the year.

CORRESPONDENCE AND RECORDS OF DISTRICT OFFICES.

The district inspectors are also in constant communication with the certifying surgeons, with the owners and occupiers of factories, with offices of local authorities, and with the heads of the department.

It is evident that there is a considerable—and it is claimed by the inspectors excessive—amount of clerical work to be done, which they regard as quite a burden and which interferes with the regular performance of duties by inspectors. One day a week—Saturday, as a rule—is given to the inspectors for the performance of clerical work, but it is evident that much more than one day must be taken up for the performance of all the clerical duties and for the writing out of the numerous reports and forms.

Inspectors are supposed to be in their districts from 9 a. m. to 5 p. m., although there is no specific regulation to this effect, and they are also supposed to make frequent inspections before and after legal hours at least one night during the week and at all times when required by the heads of the department. The inspectors have no badges of office, but are supplied with an official letter of appointment which serves as an identification in case their authority is doubted.

Each district office keeps a register of all the factories and workshops within that district, such register being amplified from time to time by notification to the department or exchanges with the local authorities. Customarily no card-record system is employed by the district inspectors, although it has been stated that this system is employed by some of the women inspectors. There is also no detailed

record of every shop in the district, except that found in the general registration. There is nothing similar to the voluminous "Akten" of each factory, which are kept by the German district inspectors, and which give the history of each factory from time immemorial to the very latest date.

The record of inspections made by each inspector is kept in his notebook, and mention of this inspection is made in his daily and weekly report. In case a complaint is received, then a special form is used for the investigation of this complaint and for the report of the inspector. The inspector also makes a report upon certain works which do not appear to require routine annual visits apart from emergency. Once a thorough inspection has been made showing the work to be in good condition, Form 354 is made out, so that this work is not included any more in the number of works which require an annual routine visit, thus decreasing the number of those works where visits are needed annually or more frequently. Special reports have to be made on those works which are under the regulations or special rules. The departmental registers are to be kept and in them special reports are to be made as to various changes in these works. Special reports are to be made also on certain regulations, special laboratory reports, applications for separation certificates, special memoranda on institutions, and numerous other forms and reports which are to be filled out by the inspectors in the course of duty.

Verbal caution may be given by the inspector in minor violations of the act, but this practice is discouraged, as there may be differences in the version given by the employer and inspector; therefore written communications are usually the rule in the dealings of the inspector with the employer. In case a violation is deemed to be important enough for prosecution, a special report of this is made to the district inspector and by the district inspector to his superintending inspector.

PROCEEDINGS IN CASE OF PROSECUTION.

Upon the consent of the superintending inspector for a prosecution the inspector lays official "information" of his complaint to the "court of summary procedure," and a summons is then sent to the occupier. The district inspector is usually the one to conduct the prosecutions, and for this purpose he usually reinspects personally all the violations upon which a prosecution is deemed expedient or necessary. The prosecution report gives the name and address of the person to be prosecuted, his occupation, the date of offense, the day of the week, the full statement of offense with act, action, etc., by whom or by what evidence to be proved, with name of witnesses, the particulars and dates of previous inspections, warning and prosecution, and the special reasons, if any, for recommending prosecu-

tion; the persons in respect of whose employment prosecution is proposed, the names and addresses of other witnesses, as well as the minutes of the inspector and countersigning authorities to sanction the prosecution. Some blanks contain also the result of the prosecution, the court in which it was tried, the date of hearing, the name and address of the clerk of the court, the conviction, whether the case is withdrawn, dismissed, etc., the amount of penalty, the amount of costs paid by the defendant or by the inspector, and the names of the inspectorial staff attending the court and in what capacity.

The information by the inspector is made out on a special form, which differs according to whether the information is general or for employment before or after legal period, or employment during mealtimes, or remaining during meal hours where manufacturing processes are carried on, or for any other violations which may be found. There are different forms for this purpose.

In the section under "Scope of the administration" the registers which are to be kept by the occupier, as well as the notices, etc., to be exposed, have been mentioned. All these registers, of course, have to be carefully inspected and their contents compared with actual conditions as found by the inspector. This work necessarily occupies a large part of the time of the inspector during his visits.

PROCEEDINGS IN CASE OF ACCIDENTS.

All accidents which occur in factories and workshops and which are either fatal or disable persons for more than seven days are reported to the district inspectors; and certain accidents causing loss of life or which are due to machinery, explosion, etc., must also be reported to the certifying surgeon, who has to make an investigation of the factory and workshops and make a report within 24 hours to the inspector. Inspectors usually investigate for themselves serious accidents and such accidents as they have cause to think were due to violation of the law. Inspectors also attend coroner's inquests.

The certifying surgeons send in these reports upon special forms; accident report, for instance, on Form 589; report on accident poisoning on Form 833; report of inquest on Form 146, and a general list of the certifying surgeon's accident reports on Form 595. The certifying surgeon's report of accident, which is given in full on Form 501, contains the name of occupier, address of works, nature of industry, branch or department of the work in which accident occurred, the date and hour that the accident was caused, what kind or part of machinery, to what was due the accident, the name, sex, and age of the injured person, the hour at which he began to work on day of accident, the usual employment, the precise occupation at time of

accident, the character of the injuries, and absence from ordinary work in cases of nonfatal accidents. He is then to make, besides this, a separate report upon his finding. Certifying surgeons also make reports to the inspector in cases of anthrax, lead or arsenic poisonings, etc.

NOTICES TO CERTIFYING PHYSICIANS.

Certifying surgeons are required to give certificates to children for physical fitness, these examinations to be given only in the workshops or factory in which they are employed, except in such cases where less than five children are employed in the work place. Then an examination may be made at the office of the surgeon. The following notice to certifying surgeons in re certificates of fitness is of interest, as it is not included in the general reports of the department and is found on a special Form 200, October, 1908, which was kindly furnished by the chief inspector.

NOTICE TO CERTIFYING SURGEON.

A child under 14 years of age, named ———, residing at ———, was found on ——— to be employed at the ——— factory (or workshop) of ——— at ——— in certain work, namely ———, which appears to involve a contravention of s. 3 of the employment of children act.

The prescribed entries relating to the child were duly made in the general register, with a certificate of fitness for employment as a ——— dated ———. No conditions were attached. The following conditions were attached.

[Omit in case of workshop in which certificate of fitness is not required.]

It may be necessary (in connection with any proceedings that may be instituted under the employment of children act) to produce medical evidence as to the unfitness of the child for the work specified above, and I am directed to ask you to examine the child (in pursuance of par. 6d of the instructions) as soon as possible, and report to me the result, stating fully (a) whether the work specified above is in your opinion likely to cause injury to the child in question; if so, a signed certificate to that effect (following the terms of the appropriate subsection of s. 3 of the employment of children act) should accompany your report for service on the occupier if necessary under subsection 6; and (b) whether the child is by disease or bodily infirmity incapacitated for full employment generally in the factory or workshop, so that if necessary a notice may be served on the occupier under s. 67 of the factory act.

[If notice sent under s. 67.]

A further notice has been sent to the occupier, in pursuance of s. 67, 1901, requiring him to discontinue the employment of the child after ———, as the said child appears to be incapacitated by disease or bodily infirmity from working daily for the period allowed by law in the ———.

If as the result of your examination you are of the contrary opinion, it is open to you, on the application of the occupier under s. 67, to give: (a) If no certificate of fitness, a certificate to that effect. (b) If certificate of fitness, a new or amended certificate of fitness, coupled with any necessary conditions as to the kind of work on which the child may be employed. (See pars. 20, 21, 22 of the instructions.)

In the event of any such certificate being given, a copy should be attached to your report.

[If no notice sent under s. 67.]

If you find that the child is either unfit to be employed daily for the period allowed by law in the —, or fit only for certain kinds of employment, you are requested to report accordingly, and to cancel the certificate of fitness (if any), or to attach to it the necessary conditions, which should be such as to exclude any injurious employment. (See pars. 20, 21, 22 of the instructions.)

[If all under 16 are to be examined.]

In the same — are employed — children and — young persons under 16 years of age. You are further requested, in pursuance of par. 6d of the instructions; to (examine: reexamine) them (1) as to whether their employment is work likely to be injurious to them, and (2) as to their fitness for working daily for the period allowed by law in the —, and to report the result to me.

If you find that any of these persons is unfit to be employed daily for the period allowed by law in the —, or fit only for certain kinds of employment, you are requested to report accordingly, and to cancel the certificate of fitness (if any), or attach to it the necessary conditions.

RELATIONS OF INSPECTORS WITH EMPLOYERS AND EMPLOYEES.

It has been seen that upon the first appointment of the inspectors almost every man's hand was against them, and that they were opposed on all sides and their work made very difficult. This opposition to the inspectors' work made it necessary from the beginning to adopt a conciliatory method, and has made inspection less a work of detection of violations than one of moral suasion and endeavor to improve industrial conditions by peaceful methods. These methods have been followed by the subsequent inspectors, even when the institution of factory inspectors had become a permanent one and there was hardly any opposition to their authority. The first chief factory inspector (Redgrave) wrote the following in his report in 1872:

Since I have had the great happiness of exercising any influence in the mode and *raison d'être* of inspection it has been my aim to cause inspection to be subsidiary to the great object of making inspectors the friends of the manufacturers and operatives, claiming the esteem of both from the earnestness and strict impartiality with which their conduct was characterized, and of their thus obtaining a personal influence which enables them to assist in a variety of ways the social improvement of the people, and in no slight degree to repress mistaken ideas, which, if left to fructify, militate against all amelioration.

It will thus be seen that although we, as inspectors, wield a powerful weapon in the power of persecution, we use it as sparingly as possible. We take our stand upon our being servants of the Government to aid and assist all who are within the range of our influence in obtaining the best instruction for children, in preventing their overwork, in relieving women from immoderate toil. We endeavor to show that immediate good will result from what is at first deemed an interference with labor.¹

This policy of making friends with employers and employees, of dealing gently with all classes with whom they come in contact, of

¹ Reports of the Inspectors of Factories for the half year ending 31st October, 1872, pp. 10, 11.

using persuasive and conciliatory methods instead of resorting to prosecution and court procedure, is still the distinctive characteristic of English factory inspection. A tour of inspection in company with the inspectors in various districts in London gave the writer a strong impression of the friendly relations existing between the inspectors and the owners of factories. There seems to be a genuine desire on the part of the manufacturer to assist the inspector in his work of inspection, to ask his advice on certain matters connected with the safeguarding of machinery, and generally to follow his directions as much as possible. This is the practice of all inspectors in other districts, and the relations of the inspectors with employers throughout the country are very friendly.

The relations of the inspectors with the employees of factories do not seem to be so close or genial. Of course it is impossible for the inspectors to know most of the workers in their districts, while it is possible for them to be acquainted with most of the employers. The writer noticed, however, no hesitancy on the part of the workers in telling the inspectors about their work, and pointing out desirable improvements in the guarding of certain machines.

The relations of the factory inspectors with some labor organizations are very close, especially in the Lancashire districts. There have lately been held special conferences by the inspectors, representatives of the employers, and representatives of the labor organizations, and three reports have been published, as follows:

Report on Conferences Between Employers, Operatives, and Inspectors concerning Fencing of Machinery and Prevention of Accidents in Woolen and Worsted Mills, by James A. Hine.

Report on Conferences Between Employers, Operatives, and Inspectors concerning Fencing of Machinery and Other Safeguards in Cotton Weaving Factories, by Gerald Bellhouse and John Jackson.

Report on Conferences Between Employers, Operatives, and Inspectors concerning Fencing of Machinery, Prevention of Accidents, and Temperature in Cotton-Spinning Mills, by Gerald Bellhouse.

The practice of holding these conferences is to be extended in the near future. There are no official relations between the factory department and the labor organizations, although complaints are often received by the department either from the labor organizations or from individual workers. There is probably some closer relation between the labor organizations and assistant inspectors who are recruited from the working class or the parliamentary members belonging to laboring classes.

Within the last few years the department, in order to come into closer relation with the workers, has appointed on its staff as an adviser on labor matters Mr. Shackleton, a prominent labor leader.

GERMANY.

HISTORY OF THE DEVELOPMENT OF INDUSTRIAL INSPECTION.¹

Legislation for the protection of workers is of much later date in Prussia and the German States than in England. This is partly explained by the fact that here the factory system rose much later and that in the absence of representative government the exploitation of child labor and the general abuses of the new system of production could not so easily gain the attention of the legislators as was the case in England. Therefore nearly 40 years of the nineteenth century passed before any attempts were made toward the amelioration of the condition of the workers and toward their protection by the State.

The following are the most important legislative acts for the protection of workers that were passed during the nineteenth century in Germany:

1839—Act regulating the employment of young workers in factories.

1845—General industrial code.

1853—Amendments concerning child workers.

1861–62—Industrial codes of Baden and Württemberg.

1869—Industrial code for the North German Union.

1878—Law making factory inspection obligatory.

1891—Amendments to the industrial code.

AGITATION FOR THE PROTECTION OF CHILD WORKERS BEFORE 1839.

In 1818 the attention of the then Prussian Minister of Public Worship and Instruction, Von Altenstein, was drawn to the miserable condition under which children were working in the factories in the Rhine Provinces. He thereupon called for detailed reports and for recommendations from the Governments of Aix-la-Chapelle, Treves, Cologne, Coblenz, Düsseldorf, Arnsberg, Münster, Minden, Breslau, and Liegnitz. The reports received by him from these districts gave vivid descriptions of the terrible condition of the child workers in the factories, and the opinion which they expressed was that something must be done to check the further development of these conditions, and that some kind of legislation was necessary to protect young workers from the exploitation of manufacturers and give them some opportunity for education.

Partly because of the usual slow methods of bureaucratic government, and partly because of the opposition of the Minister of Industry, who feared the effects of legislation upon the industrial expansion of Prussia, the matter was left in abeyance for over ten years, and was only revived in 1828, when the Minister of Public Wor-

¹ The historical data in this chapter are based upon "Die Entwicklung der Gewerbeaufsicht in Deutschland" (2d edition) by Dr. Stephen Poerschke, a book that was prepared by him as a thesis at the end of his probationary term as industrial referendar.

ship and Instruction received aid from unexpected quarters. Lieutenant General von Horn, during that year pointed out in a report to the King that it was no longer possible to get the usual contingent of recruits from the working population in the Prussian industrial districts, because of the unsatisfactory physical condition of the young workers, and ascribed this condition to their work in the factories, especially to their employment at night.

By a special rescript of May 12, 1825, the King ordered the Prussian Minister of Public Worship and Instruction and the Minister of Industry to report to him upon measures to remedy the evils of child labor in the Provinces. It was not, however, before 1832 that the two ministers could agree upon a proposal for legislation. Then their report lay in the archives and was subjected to bureaucratic red tape. In March, 1837, the suicide of a poor, very young factory girl in Barmen induced the "Rheinisch-Westfälische Anzeiger" to publish an article by manufacturer Schuchard demanding some protection for the children in factories. This agitation Schuchard continued in the provincial legislature, which he induced to petition the King for a protective law for children. After a number of conferences it was decided to issue the "Regulativ" of the employment of young workers in factories on April 6, 1839.

SCOPE OF THE LAW OF 1839.

The most important provisions of this first Prussian law were as follows:

1. The prohibition of the work of children under the age of 9.
2. The prohibition between 9 p. m. and 5 a. m. of the work of children of 9 to 16 years.
3. The limitation of the work of children between 9 and 16 to 10 hours, with $1\frac{1}{2}$ hours for meals—1 hour at midday and one-fourth hour each in the morning and afternoon.
4. Compulsory school attendance for five hours daily.
5. The prohibition of work on Sundays and holidays.
6. A list of working children to be kept by the factory owners.

The enforcement of this law was given (1) to the local police authorities, (2) to the teachers of schools, and (3) to clergymen.

Apart from the fact that the law was absurd in some of its provisions (for instance in the demand for 5 hours' instruction, a 10-hour work period, and $1\frac{1}{2}$ hours' mealtime—total $16\frac{1}{2}$ hours in the period between 5 a. m. and 9 p. m.), and apart from the fact that after $11\frac{1}{2}$ hours in a factory it was impossible to compel children to attend school for 5 hours at night, the administration of the law was defective in that there was no special institution for its enforcement, and the local authorities were unable and unwilling to enforce this law.

All reports agree that in most of the places the new law remained a dead letter. A report of the Government of Magdeburg reads as follows:

"The law of March 9, 1839, on the employment of young children in factories is in most cases not being enforced, as is evident from the reports herewith presented."¹

Years later, in 1869, Minister of State Delbrueck, speaking in the Reichstag on the enforcement of the first law, said that "it was not properly enforced because the local police authorities had very little inclination to give themselves to this hated control, partly because of the opposition of the manufacturers, and partly because of the opposition of the workers themselves."²

When it became apparent that the administration of the law of 1839 left very much to be desired, a proposition was made for the appointment of local commissions consisting of the local burgomaster, a clergyman, a physician, a school superintendent, a factory owner, and possibly a factory worker, this commission to administer the law and seek for its uniform enforcement in each district. The reports of provincial authorities and cities to which the ministers applied for recommendations were very contradictory; while some approved the appointment of local commissions, there were others who favored the appointment of factory inspectors according to the example of England. Finally, the Minister of Culture gave up the idea of appointing the local commissions, and in his order of May 20, 1847, left the matter of appointing such commissions to the local authorities.

Another attempt for a more efficient administration of the labor law of 1839 and the amendments made since that year was made by the provision for industrial councilors in 1849. These industrial councilors were appointed for the purpose of protecting handicraftsmen against the competition of factory industry, and in some places to enforce the provisions of the labor law for the protection of children and young persons. The industrial councilors were specially empowered to determine the hours of labor and the period of employment for individual factories and industrial plants. Very little, however, came of this attempt and the agitation for the better enforcement of the laws was continued from many quarters until the Government at last came to the conclusion that it was necessary to do something for the administration of the laws protecting factory children.

In 1851, Minister of State von der Heydt stated that the problem of improving the industrial conditions of the country was not fully understood by the local authorities. "At present," he added, "the Government can not leave unnoticed the labor conditions in fac-

¹ Anton: Quoted in *Die Entwicklung der Gewerbeaufsicht in Deutschland* (2d edition), by Dr. Stephen Poerschke, p. 8.

² *Die Entwicklung der Gewerbeaufsicht in Deutschland* (2d edition), by Dr. Stephen Poerschke, p. 9.

tories." He doubted the adequacy of the law and of the provisions for its proper enforcement. He demanded from the provincial authorities reports on (1) how and by what bodies the "Regulativ" of 1839 was administered, and on (2) whether any evil conditions had been found which should be removed. Most of the reports received pointed out the inadvisability of any further extension of the provisions of the law of 1839, and the uncertainty of its administration by the police, clergymen, and school authorities, or by the local commissions. The Government of Düsseldorf recommended the appointment of factory inspectors.

LAW OF MAY 16, 1852.

By this law the provisions for the prohibition of child labor were extended to apply to all children under the age of 12 years instead of 9; the workday for children between 12 and 14 was limited to six hours, and three hours per day were allowed them for school attendance. Regulations were made for pauses for rest and for "work books" for each child worker.

The most important feature of this law was the provision for the appointment of factory inspectors. The number of inspectors to be appointed was made optional to the Government. The function of the future factory inspectors was very characteristically described in a speech by the Prussian deputy, Von Olfers, as follows:

"May we get in the persons of these inspectors not police officers purely, but protectors of the poor children who are employed in the factories."¹

The function of the inspectors as stated in the law included the protection of the children during the hours of labor, and the sanitation and safety of the industrial plants only so far as they concerned the young workers. The inspectors had the right of entry to the factories, also to schools, and were to see that the children got proper religious instruction. They were to inspect the factories three times a year. They were not only to work in conjunction with the police authorities, but were to supervise their work and inform the Government of any dereliction. The police were instructed to prepare for the inspectors various data, to keep registers of the employment of children and young persons, and to see the factory inspectors when necessary. The inspectors had police power, but their written orders to employers were to be referred to the police authorities. The inspectors were to be under the jurisdiction of the district governments, to whom monthly and yearly reports were to be made.

¹ Die Entwicklung der Gewerbeaufsicht in Deutschland (2d edition), by Dr. Stephen Poreschke, p. 25.

FIRST INSPECTORS.

The provision for the appointment of inspectors being optional, only three government circuits in Prussia saw fit to make such appointments. These governments were those of Düsseldorf, Arnsberg, and Aix-la-Chapelle. The appointment of the three inspectors was at first temporary, and not until 1855, after they had been called up to the minister for special instructions, was their appointment made permanent.

The work of the first three inspectors of course met with great opposition, most of the manufacturers showing very little disposition to obey the law or take the inspectors seriously. Numerous violations were found by the inspectors. The inspector of Düsseldorf found 894 violations in 1855. In the inspection district of Arnsberg the inspector was a former school teacher. He had 350 factories in his district, employing 2,800 young workers. The number of inspections made by him were very few, and only 63 violations were discovered during 3 years. According to Anton, the inspector in this district made very few visits to the factories. Whatever visits he made were sporadic, and most of them were known beforehand to the factory owners. The inspector was sick most of the time. He died in 1860 and his place remained vacant.

The most energetic of the three inspectors was the inspector of Aix-la-Chapelle, who was formerly a police commissioner, and whose activities during his first years of work received the commendation of all friends of the law. He was very energetic and constantly met with antagonism from the manufacturers. He made frequent inspections of the 300 factories in his district and found numerous violations—171 in 1859, 108 in 1864, and 205 in 1865.

The tricks employed by the manufacturers to nullify the work of the inspectors, the signals introduced by them to remove their child workers before the entrance of the inspector, and other obstructive measures remind one of the attitude and the methods used by the English manufacturers in opposing the work of the first English factory inspectors. Thun makes a rather disparaging comparison between the effect of the work of the first inspectors in Germany and that of the first inspectors in England.¹ He says that while in England the first inspectors were able to withstand with manly courage the opposition of the rich opponents of the law, the work in Germany was given to subalterns who had not grown up in their task.

However, Thun himself had to admit that the task of enforcing the law was a very difficult one in view of the opposition of the factory owners. He said:

As soon as the factory inspector arrives in a place his presence is heralded like wildfire. Many factories he is unable to approach

¹ Die Entwicklung der Gewerbeaufsicht in Deutschland (2d edition), by Dr. Stephen Poerschke, p. 32.

without his coming being announced by clerks and apprentices. In numerous establishments the gateman does not let him in; in other places he is detained in the office so that by the time he arrives in the factory the children have disappeared.¹

CONDITIONS IN OTHER PARTS OF PRUSSIA AND IN OTHER GERMAN STATES.

If the conditions were so unsatisfactory in the few places where inspectors were appointed, they were still worse in the many remaining districts where the enforcement of the law was left in the hands of the local police authorities. After the inspection of the Berlin factories in 1856, it was reported that only in a small part of the factories was the employment of children according to the law. In the majority of factories the law was not obeyed. In the government district of Minden the employment of children under 11 years of age was found to be a regular practice. As late as in 1860, according to Anton, the law of 1853 was not enforced, except partly in those places where there were factory inspectors appointed.

Conditions were not better outside of Prussia. In the Kingdom of Saxony the Industrial Code of 1861 was left without special organizations for its administration, and its provisions consequently remained a dead letter. In Bavaria, attempts at legislation were made in 1840 and 1854; but the administration of the laws was left in the hands of the police and school authorities with the same results. The same thing happened in the Kingdoms of Württemberg, Baden, Hesse, and elsewhere.

AGITATION FOR THE EXTENSION OF LABOR LEGISLATION AND THE FACTORY INSPECTION SYSTEM.

During all this time it became apparent that aside from the protection of child workers there was also a need for the extension of legislation to cover the question of the prevention of accidents and of dangers to life and health. The few vague provisions in the previous laws touching this aspect of labor protection were very difficult to enforce because of the indefinite terms in which the laws were expressed, and because the first inspectors were not technically educated. Certainly the police authorities themselves in the places where there were no factory inspectors were entirely unfit, either by their knowledge or by their experience, to deal with questions of this kind. An agitation was therefore begun to make the laws for the protection of the health and lives of working persons more definite, and to extend the system of inspection by factory inspectors who were technically educated.

With the establishment of the North German Union the need for a uniform industrial code became very urgent, and after much agitation and numerous parliamentary conferences and debates, the

¹ Die Entwicklung der Gewerbeaufsicht in Deutschland (2d edition), by Dr. Stephan Poerschke, p. 32.

Industrial Code of 1869 was enacted without changing much the institution of factory inspection or extending its functions. The only result of the enactment of this law so far as factory inspection was concerned was the expression of the Government as to the need of increasing the number of factory inspection districts.

INDUSTRIAL CODE OF 1869.

Some of the most important provisions of the Industrial Code of 1869 were as follows:

Article 107, providing that every manufacturer should at his own cost install and maintain all such safety appliances as are necessary to safeguard the worker against dangers to life and health.

Article 128, prohibiting children under 12 years from working.

Provisions extending the application of the factory laws to mines and quarries, and including the whole North German Federation.

The provisions for the protection of workers between 12 and 14 and between 14 and 16 years were continued, and some of them made more stringent. The police were empowered to give exemptions to children between 14 and 16 years for overtime work beyond one hour a day or four hours a week.

Pauses were set at two hours a day—one hour at midday, one-half hour in the morning, and one-half hour in the afternoon.

Night work by children was prohibited between 8.30 p. m. and 5.30 a. m.

As far as the administration of the law is concerned, the Industrial Code of 1869, as indicated in article 132, provided that "where the control of the enforcement and administration of the various provisions of the Industrial Code is entrusted to special inspectors, these inspectors have the same official power as the local police authorities, especially the right to make inspections at any time, even at night." The main importance of the Industrial Code of 1869, so far as administration is concerned, lies in the fact that article 107 provided for the installation and maintenance of safety appliances to protect the life and health of the workers. It soon became apparent, however, that the ordinary police authorities had neither experience nor knowledge to determine what these safety appliances should be; and it became necessary therefore to have other administrative bodies to determine these delicate points in labor protection; hence to extend the system of factory inspection to other districts and to appoint as inspectors more or less technically trained officials. The Central Government was therefore compelled, at the request of a number of various government circuits, to appoint inspectors outside of the three, or rather two districts, in which inspectors were already at work.

Meanwhile the development of industrial production and the expansion of manufacturing led to an increase in the labor of women and children, as well as to a greater number of accidents; and in the beginning of the seventies there were a great many complaints and interpellations in the Reichstag as to the inadequacy of labor legislation, and especially as to the inefficiency of its administration. According to Anton, in the one year of 1874 the factory inspector of Düsseldorf discovered not less than 7,268 violations. A number of petitions and reports were sent to the legislators and all agreed that the administration of the Industrial Code, except in those places where factory inspectors were appointed, was very lax and that a change was needed in order to protect the laboring class.

The increase in the number of inspectors, however, was very slow. Until 1873 there were only two inspectors. After the filling of the vacancy in Arnsberg there were three. In 1874 three more inspectors were appointed, one in Berlin, one for the two districts of Breslau and Oppelu, and one for the province of Saxony. In 1875 there were altogether 11 inspectors; in 1876, 16; in 1877, 15; in 1878, 15.¹

The character of inspectors appointed had changed greatly. All inspectors appointed after 1873 were scientifically and technically trained persons with long experience in industrial work. The first two inspectors were the only ones left who had no technical training, and their activity was limited to the protection of children and young persons.

The work of inspectors may be judged from the following data: The factory inspector of Berlin reported that in 1874 he visited 27 per cent of the number of factories; the factory inspector of Pomerania in 1875 reported the inspection of 31 per cent. The factory inspector of Frankfort-on-the-Oder in 1877 inspected 37 per cent and in 1878, 33 per cent of the factories in his district. The number of factories inspected in other districts where inspectors were appointed was very small, ranging, in 1877, from 147 in Cassel to the highest number of 740 in Frankfort-on-the-Oder.

According to an investigation made in 1870, there were no less than 47,494 young persons working in Prussia during that year; but reports of the inspectors do not give much data as to their work for the protection of children in factories. During all this time the factory inspectors had, of course, to resort to the help of the police for the enforcement of their orders, as the matter of prosecution in all cases of violation was entirely in their hands.

Conditions as to the administration of the Industrial Code of 1869 were not much different in other States of the North German Union from what they were in Prussia, except in Saxony and Baden.

¹ Die Entwicklung der Gewerbeaufsicht in Deutschland (2d edition), by Dr. Stephen Poerschke, p. 50.

In Saxony a system of State boiler inspection had been in force since the year 1849. After the agitation for the extension of factory inspection reached Saxony, an attempt was made in 1872 to have boiler inspectors take charge of the administration of the provisions of the Industrial Code. On October 1, 1872, the number of inspectors was increased to four and the whole State was divided into four inspection districts. The inspectors were given the administration of the provisions of the code, not only in so far as they touched the special classes of protected persons, but also in so far as they concerned protection against dangers to the life and health of the workers in general. In 1877 the number of inspection districts had increased to five, and assistants were appointed in each inspection district, so that at the end of 1878 there were 10 inspectors in the whole State of Saxony. In Baden the Industrial Code of 1869 was followed by the factory act of April 16, 1870, by which voluntary factory inspectors were appointed. This new attempt to appoint honorary visitors and local commissions proved soon, of course, to be a failure. However, there was no improvement in conditions until the enactment of the general law of 1878, making factory inspection obligatory in all parts of Germany.

INTRODUCTION OF OBLIGATORY FACTORY INSPECTION IN 1878.

Although during the latter part of the seventies the general demand was for the extension of the factory-inspection system throughout the whole country and for the obligatory appointment of inspectors in every Government district, there was still a great deal of opposition to the extension of this institution from many sides and also great hesitancy on the part of the Government itself. On the one hand, it was urged that with the extension of labor legislation beyond the protection of children to the prevention of accidents, etc., the function of the police authorities as inspectors became no longer possible. It was pointed out on all sides that the police authorities were unable to do any more than make perfunctory inspections and get certain statistical data, and that "even the conception of what constitutes a young person or child laborer was not clear to many of the police officers."¹ Of course, when it came to the rendering of judgment on technical questions concerning the provisions for safety and health, the inability of the police authorities to do effective work was very obvious. On the other hand, there was considerable opposition to the appointment of technically trained inspectors. It was claimed by some opponents of the extension that factory inspectors would add to the difficulties of the relation between workers and manufacturers, and that these inspectors should not be given so much discretion. Prince Bismarck, who had already at that time conceived the idea

¹ Die Entwicklung der Gewerbeaufsicht in Deutschland (2d edition), by Dr. Stephen Poerschke, p. 6.

of workmen's insurance and had hopes for the solution of the problem of the control of industrial conditions by the industries themselves, was on that account opposed to factory inspection and did not think that the evils from which workmen were suffering could be remedied by the appointment of new officials.

In spite of the opposition of the Government and of many other interests, the Reichstag enacted in 1878 the amendment to the Industrial Code making it obligatory for all Government districts to appoint factory inspectors.

ADMINISTRATIVE LAW OF 1878.

The administrative act of 1878 was based upon article 139b. The enforcement of articles 105, 120, and 133 to 139 was transferred exclusively or in conjunction with the police authorities to officers specially appointed by the State Government. In the performance of their duties these officials were given all the powers held by the police, especially the right to visit establishments at any time. The Federal States were given the right to regulate the work of the factory inspectors and their relations with the police authorities, and to make this regulation as uniform as possible the Federal Council, on November 18, 1878, issued a set of model regulations; after which the factory-inspection regulations of all Federal States were patterned.

The keynote of these regulations, in so far as they related to the status of the inspectors, was as follows:

Factory inspectors were not to replace the ordinary police authorities, but were only to complement their activity. By their technical and expert advice they were to further the good relations between employer and employee; not only were they to protect the worker, but to strive in the interests of the employer also. The inspectors were admonished to endeavor to prevent the dangers to the health and lives of the workers. In so doing, however, their demands were to be made so far as possible without injury to the interest of the manufacturers. The inspectors were not to issue police orders, but were to endeavor to stop individual violations by their peaceful representations and expert advice. Should they detect violations of the law relating to employment of children, they were immediately to inform the police, who would conduct the further proceedings and prosecutions under this law. When inspectors discovered violations of the spirit of article 120, relating to dangers to life and health, they were first to notify the employers and recommend certain improvements; and, if on reinspection their recommendations had been disregarded, then the inspectors were to notify the police for further proceeding and prosecution. The relations between the police and factory inspectors, the inspectorial work of the ordinary police authorities, the manner of engrafting the factory-inspection service

into the bureaucratic system of the State, and the forms of reports to be made by the inspectors were also regulated in detail.

No definite provisions were made in the regulations of 1878 as to the qualifications of inspectors, but the chancellor recommended "as a rule, to appoint only persons with a scientific education who had graduated from higher technical schools and had been afterwards either in public or in private technical service, or men who had conducted large industrial establishments."

The main argument for the appointment of technically trained inspectors was the incorporation in the Industrial Code of 1869 of article 120, providing for safety appliances to prevent dangers to life and health. This provision, however, was very general and there was no definite standard set as to what constituted "danger to life and health," or any determination of what the proper standards for the various safety appliances to prevent accidents or dangers to life and health should be. The necessity for setting such standards became apparent with the appointment of inspectors in all the government districts in the State, for there could hardly be any uniformity in the work of the inspectors without a determination of what safety meant and what appliances should be required. The Government was urged to remedy this inadequacy of the law, and in response to the many petitions several commissions of experts and committees of engineers were appointed in the early eighties. Their reports were not unanimous in their conception of the general meaning of the paragraph or of the exact standards to be set for the safety appliances needed. In spite, therefore, of the general demand for more definite standards, the matter remained in status quo and nothing was done to give a more detailed explanation of article 120. Only after the enactment of the insurance law of 1884, and after the establishment of the various mutual trade associations (*Berufsgenossenschaften*) for accident insurance, was the attempt made to set definite standards of safety by the industries themselves.

FACTORY INSPECTION, 1878 TO 1891.

In 1879 Prussia was divided into 19, and in 1881 into 18 inspectorial districts, and each district division remained practically the same up to 1890. Each district was supervised by an industrial councilor (*Gewerberat*). From time to time several assistants to the councilors were appointed, so that in 1890 there were altogether 11 assistants, who, with the 18 district inspectors, constituted 29 inspectors in all. The activity of the factory inspectors in the period between 1878 and 1891 was not very great. According to the Amtlichen Mittheilungen for 1884, the inspectors visited only 14 per cent of all the factories in Berlin, 12.5 per cent in Magdeburg,

10 per cent in Potsdam and Frankfort, 6.4 per cent in Breslau and Liegnitz, and 5.3 per cent in Schleswig-Holstein.¹

Outside of Prussia conditions were not much different as far as the activity of the factory inspectors were concerned. In Bavaria three factory inspectors were appointed in 1879 with the title of "Government assessors," and the State was divided into three districts with 2,900 factories, employing 103,000 persons. Each inspector made 391 inspections yearly. In 1886 a fourth inspector was appointed, raising the average to 498 inspections per year.

In Württemberg no separate factory inspectors were appointed, but the work of factory inspection was transferred to two members of the central authorities for industry and commerce. As these had many functions to perform beside factory inspection, activity in that field was very slight, only 178 inspections a year being reported for each inspector. In 1887 reorganization took place, two inspectors and assistants were appointed, and in 1889 the State was divided into two districts with factory inspectors in each and with an assistant for each inspector.

In Baden a factory inspector was appointed in 1879, and in 1886 an assistant was appointed whose functions in part were the inspection of boilers. A second assistant was appointed in 1890.

In the Kingdom of Saxony the staff of inspectors was increased in 1888 by the appointment of several assistants, numbering 17 in all. In 1884 a redivision of districts was made, so that there were altogether 7 inspectors, in the supervision of as many districts, who had under them 13 assistants. In 1890 the number of assistants was increased to 18, so that the total number of inspectors was 25. In the other German States inspectors were appointed, but their number was very small—from 1 to 2 inspectors being appointed in each district.

EXTENSION OF LABOR LEGISLATION AND THE REORGANIZATION OF FACTORY INSPECTION.

The period between 1871 and 1891 in Germany was marked by great economic expansion and tremendous industrial activity, due to the unification of all of the German States and the success of the Franco-German War. This industrial progress led to a large increase in the employment of women and young persons, to a large increase of industrial accidents, and also led to great activity on the part of the German workingmen. This was the period of great progress in the organization and political ascendancy of the German social democracy. The rapid increase in the power of the labor organizations, economic as well as political, caused the increased demands of the workers for additional protection to be heard with respect by all the political parties in the Imperial Parliament. All

¹ Die Entwicklung der Gewerbeaufsicht in Deutschland (2d edition), by Dr. Stephen Poerschke, p. 105.

parties vied with each other in protests against existing industrial conditions and in demands for increased protection for the workers; for the extension of legislation to protect children, young persons, and women, and for greater improvement in the administration of the labor laws. Indeed, the question of factory inspection became a very vital one in their discussions, and many projects were brought forth to improve the service and to make the administration of labor laws worthy of its name.

In the session of the Reichstag of 1885-86 the Social Democratic Party brought in a project for the reorganization of the factory inspection department by the creation of 200 or 250 "labor offices" (*Arbeitsämter*), each of these offices to work under the supervision of an advisory labor council (*Arbeitsrat*), composed equally of workers and employers. The whole scheme was very complicated. It was not based upon a scientific foundation, and was opposed by the Government as well as by the representatives of other parties.

The attitude of the Government, represented by Chancellor Bismarck, was very much against the extension of either labor legislation or the institution of factory inspection. It is said that the attitude of opposition to labor legislation and factory inspection by Bismarck was not due to his denial of the need for these reforms, but was due to his new conception of State protection for the workers. In the beginning of the eighties Bismarck was already imbued with the idea of protecting the workers by means of a State insurance law and by the organization of insurance corporate associations, and of making every industry responsible for the prevention of accidents and dangers to life and health in its own field. Bismarck saw the solution of the labor problem in the enactment of the insurance law of 1884 and in the creation of the trade associations (*Berufsgenossenschaften*), in which the various industries were organized on the basis of self-protection of all the employers in each branch of the industry, it being the interest of the manufacturers to reduce accidents in order to gain a reduction in their insurance rates.

In 1890, the German Government, at the instigation of Emperor William II, called an international conference at Berlin for the protection of laborers, in which conference 15 nations were represented. A number of recommendations were made at this conference for the extension of labor legislation and also for the improvement of the administration of the labor laws. Having taken the initiative in the conference, the German Government could no longer oppose the extension of labor legislation, and in the Reichstag of 1891 the new amendment to the Industrial Code (*Gewerbenovelle*) of June 1, 1891, was at last enacted.

SCOPE OF THE INDUSTRIAL CODE OF 1891 AND REORGANIZATION OF THE FACTORY INSPECTION DEPARTMENT.

By the law of 1891 children under 13 years of age were forbidden to work; children over 13 years of age could work only when they fulfilled certain educational requirements. No exceptions were allowed. Children between 13 and 14 could not work more than six hours per day with a half-hour pause during these six hours. Sunday and holiday work was prohibited for children. No children were allowed to work between the hours of 8 p. m. and 6 a. m. In certain industries where there were special dangers to health and morality no children were allowed to work at all. In factories where young persons under 18 years of age were working, certain requirements were made as to the hygienic and moral conditions of employment. The requirements of the law were extended to small workshops and to some home industries.

The administration of the labor laws was also reorganized with an increase in the scope of the work of the inspectors and a larger contingent of inspectors.

The scope of the work of the inspectors was increased to embrace the following matters: (a) The enforcement of Sunday rest; (b) the protection against dangers to life, health, and morality; (c) the protection of children, young persons, and women (as to their age, periods of employment, pauses, etc.); (d) the prevention of the work of young persons in dangerous trades; (e) the protection of apprentices in hotels and taverns. With the extension brought by the later laws the work of the inspectors was to embrace the inspection of clothing industries, of workshops with motor power, and the protection of workers in home industries.

In reorganizing the department of industrial inspection in Prussia it was intended to divide the whole State into 26 government circuits, each presided over by a government or industrial councilor. These government circuits were to be divided into a number of districts, all together 97, with an industrial councilor as district inspector with one or more assistants. The appointment of the inspectors was to be limited to persons with academic and technical training, but a promise was made for the appointment of assistant inspectors from the working class.

INDUSTRIAL INSPECTION AND INSPECTORS FROM 1891 TO 1913.

Poerschke in his book¹ gives a number of tables which show in detail the growth of factory inspection, the increase in the number of inspectors, and their activity from 1891 to 1913. The following data are based upon these statements:

The number of circuits in Prussia in 1891 was 19. This was gradually increased until in 1912 it was 34. In 1913 it was increased to 37.

¹ Die Entwicklung der Gewerbeaufsicht in Deutschland (2d edition), by Dr. Stephen Poerschke.

The number of inspection districts was increased from 19 in 1891 to 187 in 1913.

The number of officials in the inspection department in Prussia was increased from 65 in 1891 to 328 in 1912. The percentage of factories inspected by the inspectors was increased from 31 in 1897 to 51 in 1912.

In Saxony the number of inspectors was increased from 7 in 1891 to 15 in 1911, and the total number of officials in the factory department was increased from 24 in 1891 to 53 in 1912.

In Bavaria the number of inspection districts was increased from 4 in 1891 to 11 in 1912, and the total number of officers from 4 in 1891 to 35 in 1911.

In Wurttemberg the number of districts was increased from 2 in 1891 to 4 in 1911, and the total number of inspectors from 4 to 19 in the same period.

In Baden the number of districts was increased to 4.

The number of inspection districts and inspectors in the other States and districts in Germany was, of course, also increased during the same period.

RELATION OF INDUSTRIAL INSPECTORS TO THE POLICE AUTHORITIES.

We have seen the important rôle which the police authorities played and are still playing in the administration of the labor laws in Germany. It is a fundamental principle of German legislation that the enforcement of all laws shall be given to the police authorities. When, therefore, legislation was extended to the protection of workers, it was natural that the police authorities should be given the administration of these new laws. We have already seen, however, that the administration of the labor laws by the police authorities was not satisfactory either to the Government or to the various parties representing the different classes of population in the State.

Even when labor legislation was confined to certain protective measures limiting the age of working children and restricting the work of older children and of women, it was seriously questioned whether the police authorities had either the wish or the ability to enforce these laws. It was therefore because of the general dissatisfaction with the police administration of the labor laws that the institution of factory inspection was first introduced in 1853, then extended throughout the different States, then made obligatory in 1878, and finally reorganized in the industrial inspection of to-day. But even with the creation of a new administrative body, the police were not relieved of their participation in the administration of the labor law and still remained practically the only executive authority to enforce the law by court proceedings, summary prosecutions, and the imposing of penalties and fines.

Beside these executive functions the police still retained considerable inspectorial functions, in that they were required to make certain visits, to gather certain data, and generally to assist the inspectors.

In all the orders and decrees of the Government officials we find much emphasis laid upon the fact that the inspectors were not to supplant the police authorities in their functions, but were to supplement their activity.

The following quotation from a speech in 1887 by Minister Von Boetticher best defines the relation of the two bodies:

The factory inspector is not intended to become a police executive organ. The factory inspector is an official, who, because of his technical knowledge, is, on the one hand, an adviser to the authorities in the establishment of various regulations for the safety of industrial establishments, and, on the other hand, is an adviser of the industry and of the workers in the sphere which is given to him. The real "police" tasks in the control of the employment of young persons should not be within the sphere of the activity of the inspectors. For this the factory inspector is much too high. This may be left to the police (gendarmes).

The relations between the industrial inspectors and the police authorities have remained practically on the basis established by these principles, although there have been of late a number of attempts to change these relations and to make the police authorities more subservient to the industrial inspectors; and in some places even to make them a subordinate part of the factory inspector's department, as we shall see later.

RELATIONS OF THE INDUSTRIAL INSPECTORS WITH THE TRADE ASSOCIATIONS.

A very important rôle in the protective measures against accidents and dangers to life and health is played by the so-called "Berufsgenossenschaften," which are institutions created by the insurance laws of 1884, and consist of mutual trade associations for the purpose of insurance or the union of all employers in certain individual industries or industrial branches or groups of industries.

The accident insurance and workmen's compensation laws of Germany provide a certain rate of insurance to be paid by certain industries and industrial groups according to the risks existing in them. The amount of insurance paid by the employers of the industry is therefore in close relation to the number of accidents and specific dangers occurring in the various establishments in the industry for which the employers have to be taxed. It is therefore to the interest of the employers to reduce the risks and to make such improvements as will lead to the prevention of accidents.

It was Bismarck's idea that this self-interest of employers would perhaps be the greatest incentive to the proper enforcement of the provisions of article 120 relating to the prevention of dangers to life

and health and to the enforcement of the requirements of the factory inspection department. Therefore these trade associations were not only given the right to participate in the establishment of special rules and regulations for the prevention of dangers to life and health in their respective industries, but also considerable power in the administration of these rules and regulations. It was thought that in issuing special rules and regulations for the trade each trade association would be guided by the best technical ability within the trade, that rules and regulations so arrived at would be just and equitable and not too great a burden for the industry to carry.

At the same time the workers in the industry were given some right to participate in the deliberations for the establishment of these rules and regulations, although this participation and influence proved negligible. In the administration of the rules and regulations the special appointees of the trade associations were given right of entry to factories and shops, the right of examining books in order to determine the wage payments, etc., and especially the right to examine the machinery and other parts of the factory with the view of securing improvements leading to the prevention of accidents. The law also gave to each trade association the right to impose penalties upon individual owners, either by imposing out-right fines which would not exceed more than 1,000 marks (\$238) for employers, and not more than 6 marks (\$1.43) for employees for each offense; or by placing the owner of an establishment in a class paying a higher insurance risk.

Soon after the enactment of the insurance laws of 1884, we find that there were, in 1885 and 1886, already 62 trade associations. In later years three more associations were formed, making altogether 65 trade associations in the country. From the beginning, the task of establishing rules and regulations for each industry was very great. The trade associations employed their own experts and outside technical advisers. The high technical abilities of their experts may be judged by the fact that from the beginning they called in for consultation and afterwards for guidance, Industrial Councilor Reichel, who had been factory inspector in Aix la Chapelle since 1875 and since 1879 a professor in a higher technical school in Aix la Chapelle.¹

The technical supervisory officials who were appointed by the trade associations were not at first numerous, and not all of them had the exclusive function of factory inspection; they had also various other functions to perform, such as the revision of pay rolls, etc. According to a table from the official report (*Ämtliche Nachrichten*) of the insurance office, there were in 1911 65 trade associations, each of which issued special rules and regulations, and 63 of which appointed

¹ Die berufsgenossenschaftliche Unfallverhütung, Konrad Hartmann, p. 7.

their own technical inspectors, the total number being 350. The number of establishments under the control of trade associations was 743,823. The inspectors visited over 17 per cent of these. The cost of the accident prevention work of the trade associations amounted to 2,197,581 marks (\$523,024.28).

The various trade associations constantly endeavored to bring accident prevention and the science of safeguarding the workers against dangers to life and health to a high degree of development, and for this they established a number of special technical associations. These issue several scientific publications such as the "Industrial Technical Adviser," since 1907 issued under the name "Soziale Technik," a "Handbook for Accident Prevention," and numerous special accident prevention rules and regulations. These trade associations have also endeavored to induce technical institutes and universities to introduce accident prevention courses in the schools. They have from time to time offered and given prizes for inventions and discoveries leading to better methods of accident prevention. They have also participated in almost all of the exhibitions on safety and sanitation which were held either in Germany or outside of Germany since their establishment.

The trade associations are in very close relation with the imperial insurance office. In 1906, the Kaiser Wilhelm and Kaiserin Augusta Victoria Foundation was established by the 36 trade associations, with an initial capital of 177,500 marks (\$42,245), for the purpose of assisting discoveries and inventions leading to accident prevention and to the protection of the lives and health of workers.¹

It is obvious that with such wide legislative powers and with such considerable administrative functions, the activity of the trade associations must have come in close contact with the work of the industrial inspectors; and this dual industrial control might have led to some friction. As a matter of fact, such was at the beginning quite frequently the case. The regulations of the trade associations were not always the same as those of the inspectors. Sometimes they did not go so far, while at times they went further, with the result that the inspectors had great difficulty in their work of inspection in enforcing article 120 of the Industrial Code, especially in the matter of licensing those establishments in trades which needed, according to article 16, an application for authorization. The result of the frequent friction and conflict was that the disputed points had to be referred to the adjudication of the higher Government officials who had to call in experts, meanwhile causing great delay in the administration of the labor laws.

With a view to lessening the differences between the requirements of the trade associations and those of the inspectors, considerable

¹ Die berufsgenossenschaftliche Unfallverhütung, Konrad Hartmann, p. 33.

change was made in the issue of the new industrial accident insurance law of July 19, 1911, in the provisions for the establishment of special rules and regulations for industries by trade associations. The improvement was secured by the provision that in the yearly conferences on amendments to the rules, the insured workers should have equal representation, with full voting power, the representatives to be chosen, however, by the Government insurance office. Also the conferees were to be informed by the police authorities of those regulations concerning the industries upon which the conference was held that had been made by the police or by the inspectors.¹ According to article 852, the rules recommended by the trade associations had to be approved by the insurance office, which usually got the opinion of the industrial inspectors upon them.

By these provisions it was sought to lessen the points of conflict between the factory inspection department and the trade associations, and between the factory inspectors and the technical inspectors of the trade associations: It is said, however, that this attempt has not been entirely successful.

WOMEN INSPECTORS.

With the extension of labor legislation to the protection of women the desire was expressed that women be given participation in industrial supervision and administration of the labor laws. As in other countries, this agitation for the appointment of women inspectors came mostly from the various labor organizations, from women's trade and other organizations and from radical parliamentary parties. The agitation for the appointment of women inspectors became very strong in 1884, and has continued since that time with increasing force.

In 1895 the matter of appointing women inspectors came up before the Diet in Hesse and a committee was appointed to visit England and report upon the success of women inspectors in that country. The report of the committee was rather adverse to the appointment of women inspectors, and in 1896 the Prussian Government made a decision against the appointment of women inspectors. The inspectors themselves were rather against the innovation. The arguments for the appointment of women were the same that were and are being urged for this measure in other countries. These are that women usually show a greater interest in the enforcement of labor laws, especially as they affect women, and secondly, that women inspectors are able to get certain information from women employees more easily. A number of women were appointed in 1890, but their functions were limited to the inspection of small workshops where

¹ See article 872, Hoffmann's Gewerbe-Unfallversicherung Gesetz.

women were employed, and to assist the other inspectors in their work.

Having assigned less important functions to the women inspectors, and having constituted the female inspector as a sort of inferior assistant, the qualifications demanded of women candidates for appointment were much lower, in that women were not expected to be technically trained graduates of higher schools and universities. Only in Baden was a female inspector appointed with academic education and given an equal standing with the male inspectors. With the extension of industrial inspection to the inspection of clothing industries and with the enactment of the child-labor law of 1903 the function of women as inspectors became more important, and a larger number of women inspectors were appointed.

Experienced inspectors were of the opinion that there was no special need for the appointment of women inspectors. The well-known Schuler, who was one of the oldest and most experienced inspectors in Switzerland, once gave his opinion that it was not true that female workers were hesitant to disclose any sanitary defects in their establishments to the male inspectors. He did not think that the women could get more information than the men inspectors, and since in most establishments there are usually as many men as women employed, the wisdom of preferring women as inspectors in individual establishments or in other places was doubtful.

According to the speech of Minister of Commerce and Industry Delbrueck before the Reichstag in 1906, "the women inspectors have generally accomplished neither more nor less than the men industrial inspectors. One can not assert that they have discovered anything special in the industrial conditions connected with the work of women; but while they have not accomplished anything special, we have found that their work showed good results, especially in Berlin."

The character of women inspectors appointed in Germany, it is evident, differs very much from the high character of the women factory inspectors in England, and their position is accordingly much inferior to the position of the English women factory inspectors.

The number of women inspectors in Germany increased from 4 in 1898 to 8 in 1900, from 23 in 1904 to 31 in 1910, and to 39 in 1911.

PHYSICIANS IN THE INDUSTRIAL INSPECTION SERVICE.

The need for the participation of physicians in protecting the workers from industrial dangers and in administering the labor laws in general was expressed as early as in 1840, soon after the enactment of the "Regulativ" of 1839. It was then proposed to add physicians to the local commissions which were to be appointed to supervise the administration of that law. This proposal was especially advocated in a circular of the ministers in 1845. However, there was little

progress toward securing its acceptance until the enactment of the Industrial Code of 1869. This code, as is well known, contains an important paragraph, which in general terms compels the employers at their own expense to provide such safety appliances to prevent dangers to the lives and health of workers as the factory inspectors may order. The logical consequence of any attempts to administer this provision of the law was that the opinions of the inspectors and the employers as to what constitute dangers to health and life conflicted, and it became absolutely necessary from time to time to get the expert services and advice of physicians. A number of physicians in official life and those outside of it were therefore frequently called in consultation by the Government councilors and by the factory inspectors whenever this procedure was found necessary. The practice was, however, desultory until 1884, when a ministerial circular defined more clearly the relations of the district physicians to the industrial inspectors.

According to article 120e of the Industrial Code, July 1, 1883, the Federal Council was given the authority to issue regulations in special industries or industrial establishments as to the meaning of the provisions of articles 120a to 120c. The Federal Council therefore issued from time to time certain instructions which required the medical examination of workers before employment in certain industrial establishments and in certain industries. Provision was also made for periodical medical examinations during work. Medical examinations were required in the following industries and establishments:

- The manufacture of white lead and lead colors.

- The manufacture of mirrors with mercury.

- In match factories.

- In the manufacture of electric accumulators.

- In the manufacture of alkali-chromates.

- In factories where Thomas slag was ground and stored.

- In works, such as glass factories and hammer works, where young persons were at labor.

- In places where female workers between 16 and 18 years of age were employed.

- In certain mines, etc.

The physicians who were appointed by the factory owners (preference being given to physicians belonging to the sick benefit associations) had, besides the work of medical examination in the industries and establishments specified, to report cases of industrial poisoning in these and other establishments to the inspectors.

Another of the activities for which it was necessary to draw from the medical profession was the enforcement of article 16 of the Industrial Code. According to this paragraph a large number of industries, the exact character of which will be found in another part of this

report, were required to have authorization before they could be carried on. While the special purpose of article 16 was to prevent danger to the districts surrounding the establishments in those industries, the ministers decided that licenses to operate should be given only when all the various measures to prevent danger to life and health within the factory had been taken. According to the law the persons to pass upon the applications for licenses were the factory inspector, the district physician, the district architect, the district police, and such other district authorities as would be specially interested in the character of the establishment to be erected or maintained. The application for license had also to be renewed in case any considerable alteration or addition to existing establishments should be made.

The application had to be accompanied by certain plans, etc., and, in order to give chance for complaints or objections to the establishment, had to be published in the newspapers. The district physicians were to pass upon the points directly in their sphere, either on the dangers affecting the public at large, or the special dangers to the workers in the proposed establishment. This participation of physicians was, however, very slight between 1884 and 1899, as their help was required only when their advice was found necessary in the opinion of the local authorities. Thus in Berlin, in the four years between 1885 and 1888, there were only two cases in which physicians were asked to assist, and in the district of Belzig in the five years from 1885 to 1890 only three such cases were found.¹ On August 9, 1899, a ministerial circular regulated in a more satisfactory way the function of physicians in the matter of licensing new and old establishments, with the result that a more regular participation of physicians in this work was secured.

As far as the connection of physicians with the regular work of factory and industrial inspection is concerned this was, and even at present is very slight, apart from the functions already indicated. The agitation of the Liberal and Social Democratic parties is very strong and the pressure upon the Government from medical and scientific circles is also great for a more thorough incorporation of men with medical knowledge into the inspectorial service. In 1906 a medical man was appointed as a regular factory inspector in Baden, and during the first few years of his inspectorial activity he did the same work as the other inspectors. Only lately has he been given special work in the medical line. In Bavaria in 1909 a physician was appointed as an adviser with special functions; but he was assigned to the ministry and to the central office of the factory inspection department with the special functions referred to later. Outside of these two places there are no physicians in the inspectorial service.

¹ Sommerfeld, *Der Gewerbearzt*, p. 119.

APPOINTMENT OF ASSISTANT INSPECTORS FROM THE WORKING CLASS.

Among the leaders of labor organizations, among the members of the Social Democratic Party, and also among the members of other radical parties, the opinion has always been strong that the workers themselves ought to participate in the administration of the laws for their own protection. It is claimed by those who hold this opinion that the interests of the workers can best be protected by inspectors coming from the working class—that these can better understand the conditions under which workers labor, and better suggest improvements in these conditions, especially in cases where the matter does not require technical knowledge, but involves simply the protection of certain classes of persons; for instance, the prevention of child labor, etc. Reference has already been made to the project of the Social Democratic Party in the Reichstag of 1885–86 for a greater participation of the workers in the administration of the labor laws.

The Government has often and consistently opposed this movement in so far as it was proposed to give an important function to inspectors coming from the working class. In his speech in 1906 Minister of Commerce and Industry Delbrueck spoke as follows in regard to this matter:

What should labor representatives really do in industrial supervision? Should they become police officers, then they would cease to be the representatives of the workers, and I fear we would soon have as many complaints against these police officers coming from the working class as we have in the mining inspection against the work of inspectors of the same class. Should they, however, not be police officers, but report to the inspectors infractions of the Industrial Code, then it is probable that they would only report violations on the part of the employers. I hold it desirable that the incorporation of workers in industrial supervision should not be compulsory, but optional—a matter for agreement between the parties. Then only will it be of use. If the worker is appointed an inspector, he leaves the industrial establishment and becomes an official. The question then is practically this: Whether we wish to have officials representing the State or the Social Democratic Party. If the inspector is to be a State official, then he is not needed; if he is an official of the Social Democratic agitation, then he is an evil.¹

In spite, however, of the various objections, appointments have been made from the working class here and there in States outside of Prussia. In Bavaria a worker was appointed as assistant inspector in 1896; in Württemberg, at the repeated demand of the Diet, three workmen were appointed as assistants to the industrial inspectors in 1903. Most of their work consisted in the inspection of small workshops with motor power, the inspection of bakeries, confec-

¹ Kahler, in "Soziale Praxis," No. 11, 1909, p. 269.

tioneries, hotels, taverns, etc., as well as in the administration of the law for the protection of children. In Hesse, in 1907, five assistant inspectors were appointed from the working class. In Saxony three assistant inspectors were appointed in 1912. Inspectors were so appointed also in Baden, Alsace, Lorraine, and in Bremen.

Since the organization of the international association for labor legislation, the demand for the greater cooperation of the workers in factory inspection has been widely agitated and discussed, and it is probable that in future the number of assistant inspectors taken from the working class will show a large increase.

ATTITUDE OF THE WORKING CLASS TOWARD INDUSTRIAL INSPECTION.

The successful administration of labor laws must and will always depend to a great extent upon the interest of the workers themselves, upon their desire for protective measures, and for an honest administration of the protecting law. No inspection, no matter how thorough it is or how many times it is performed, can enforce certain parts of the labor law in individual establishments unless those provisions are based upon the need of the workers themselves and call forth their support in enforcement and administration. It is therefore of great interest to note the relation of the laboring people themselves and of their representatives in the trade-unions and political parties to the institution of factory inspection and to the officials employed in the department of industrial inspection.

As a matter of fact, one regrets to note that the interest of the working people and their representatives in the official factory-inspection service is, as a rule, very slight. Neither in their official organs nor in the parliamentary debates, nor in the number of complaints sent by the workers and their representatives to the factory-inspection department, have the workers themselves shown special interest in the administration of labor laws. Of course there is a certain amount of discussion in the labor press and among the labor representatives on matters of factory inspection; but this discussion is mostly in the form either of the denial of the worth of the work of the factory inspectors or in bitter criticism of their work and their efforts. The Social Democrats have no special demands in their political platform relating to factory inspection. In their official handbook for voters, 1908,¹ industrial inspection is termed "a mere form only;" and in Parliament Social Democrat Boardman declared in a speech on March 8, 1909, that he considered "industrial inspection of very little worth." He went on to say, "One thing I must, however, say, that without it we should probably have conditions in Germany which would produce a great many more victims on the battlefield of labor than is the case at present."

¹ Quoted by Kahler, "Soziale Praxis," 1903, No. 11, p. 267.

In interviews with a number of Social Democrats and labor leaders in Germany there was found either a tacit ignoring of the subject of factory inspection or opposition to the present system of factory inspection. A prominent social worker in Berlin, however, expressed his opinion that the extreme radicals oppose factory inspection simply because "they can not admit anything good in this system of capitalistic production. That is simply talk to the gallery. The leaders of the party know very well the value of the protection given by inspectors, and in the Reichstag and other places they constantly demand the extension of the system and an increase in its extent and power."

Criticism is usually directed to several points: (1) To the number of exceptions granted by the inspectors; (2) the increased number of accidents; and (3) the cases of indiscretion by the inspectors in divulging the names of the workingmen who make complaints.

The following extracts from various official labor sources give an idea of the criticism alluded to.

The Vorwärts of April 22, 1913, says:

The factory officials announce a decrease in the number of violations. It would be a mistake, however, to infer from this statement any real decrease in the number of violations against the labor laws. Many of the establishments the inspectors have never entered. Where they do enter their coming is heralded in advance and prepared for. The number of exceptions granted by the officials appears to be much larger than last year. Overtime work was allowed last year in 2,183 establishments, employing 158,632 women workers, the overtime hours amounting to 2,264,127. In all, 2,240 establishments, employing 172,691 women workers, were allowed 2,534,684 hours overtime, an increase of 12 per cent during 1912. The exceptions allowed for Sunday work have also been increased, from 1,459 in 1911 to 1,507 in 1912; the number of hours allowed from 1,019,808 to 1,389,303 in 1912.

When the officials are so liberal in permitting the employers to violate the protective laws by legal means, then of course it becomes unnecessary to resort to illegal violations. Here perhaps is the key to the officially stated improvement in the enforcement of the laws for the protection of workers. Of course, by such a method we may surely soon reach ideal conditions. More strict protective provisions and the improvement of inspection by the introduction of the control of the whole industrial inspection by the workers are inevitable.

Speaking of the insignificant fines paid by employers in cases of violation, the Vorwärts of February 25, 1913, writes as follows:

"In most cases the violations of the labor laws cost the employer about 3 marks (71.4 cents). Such fines act rather as a premium to the existence of violations." The officer in Düsseldorf even reported that an employer was found not guilty when it was proved that he had systematically falsified his working books.

In the Fifteenth Report of the Trade-Unions in Stuttgart for 1911, printed in 1912, page 7, we find the following statement:

We repeat therefore our demand that the powers of the industrial inspectors be so broadened that they not only include the power to require sufficient protective devices, but also to influence the working methods of the inspectors. In order to accomplish good work it is necessary to watch the industrial establishments constantly, which means that for large industrial establishments it is necessary to have specially appointed supervisory officials.

The same report also mentions the following:

Yet otherwise is the confidence of the workers in the industrial inspectors lessened by the unpleasant affair which had lately been so widely commented upon.

During an inspection of an establishment in Ludwigsburg by Industrial Inspector Burner, the employer was given a chance to examine the handwriting of the complainant, who was soon after dismissed. The inspector was said to have made the remark on being asked by the employer for the reason of the sudden unusual inspection, that "you probably have an agitator in your place who made the complaint." The *Holzarbeiter Zeitung* says in this regard "that our Württemberg colleagues would do well to be more careful in their relation with the industrial inspectors."

We also find the following note in the *Vorwärts* of January 24, 1913:

The industrial inspector, Dr. Urban of Schönebeck, seems to have a remarkable conception of his office. He receives complaints about violations, promises to investigate them, and then delivers the complaints to the firms complained of and even appears as a court witness against the complainant.

How far such complaints and criticisms which are made frequently in the labor press deserve credit or are based upon facts can not be determined. It was found, in discussing the matter of factory inspection with a number of representative laborers, that factory inspection is regarded by many workers as a great protection, and that, as a rule, factory inspectors are very much respected and their work considered to be done impartially and efficiently. The factory inspectors in their districts are always endeavoring to come in closer contact with the workers, to induce workmen to make complaints, and in a number of places have even kept their offices open on Sundays and holidays in order to give workmen a chance to come to them personally and make verbal complaints.

A number of attempts have also been made by labor organizations to take a greater interest in industrial inspection and to assist the inspectors in a concerted way. In Saxony certain trade-unions organized committees for the protection of children. The *Hirsch Dunker-Vereine* and the Christian trade-unions have very closely cooperated with the factory inspectors by sending complaints and assisting

their inspections. In 1909 the Social Democratic Gewerkschaftshaus created a children's protective commission with a number of female supervisors, whose function was to detect violations, and, if not able to improve conditions, to report all such violations to the police or industrial inspectors. Such committees have also been appointed in Stuttgart and in several other cities.

A very interesting experiment has been made in Württemberg. Here a number of "Fachvertrauensleute," or confidential agents, were appointed by the labor organizations. These were to act as intermediaries between the workers and the factory inspectors. They were to receive complaints from the workers and were to make a preliminary report to the factory inspectors as to whether these complaints were well founded. This experiment was begun in 1890. In 1901 there were in all 182 confidential agents appointed, of whom 114 were men and 68 were women. The following labor organizations sent their representatives: The united trade-unions appointed 45 men and 17 women; the Hirsch Dunker trade-unions sent 8 men and 3 women; the Evangelische Union sent 39, and the Catholic Workers Union sent 22 representatives. Among the women representatives were 48 nurses, nuns, and other persons who were recommended by the factory inspectors.¹

In the period from 1897 to 1902 there were received in Württemberg 744 well-founded complaints, of which 700 passed through these confidential persons. The attempts to establish such an institution of confidential persons in other States have not met with the same success.

Factory inspectors do not show much educational activity among the laboring classes. Apart from the publications of the "Berufsgenossenschaften," or trade associations, which have published a considerable mass of educational material and spread information concerning accident prevention and protection of workers, little has been done to educate the workers in the importance of factory inspection. The factory inspectors very seldom or never appear as speakers in labor meetings for the reason that, as one of the inspectors explained, rather awkward questions might be put to them which they would have difficulty in answering in their official capacity.

THE INDUSTRIAL CODE.

SCOPE OF THE INDUSTRIAL CODE.

Labor legislation in Germany is based upon the Industrial Code promulgated in 1869, reissued in 1883, amended and consolidated in 1890-91, and added to since then by special legislation and regulations of the Federal Council and ministers.

¹ Die Entwicklung der Gewerbeaufsicht in Deutschland (2d edition), by Dr. Stephen Poerschke, p. 179

The scope of the Industrial Code is very broad and includes many matters connected with commerce, industry, and labor. The terms of the Industrial Code are mostly general, and need interpretation and amplification either by court orders and decisions or by rules and regulations issued by the Federal Council, by State legislatures, or by ministerial orders. Thus, article 139b gives only general directions as to the administration of the Industrial Code; but the ministerial order of April 27, 1891, and a similar order of March 23, 1892, give a detailed explanation of the provisions of administrative control of factories and workshops. The Homework Law which was passed by the Reichstag, December 20, 1911, is followed by an order of the Ministry of Commerce and Industry, March 16, 1912, which explains and interprets the law.

The Industrial Code, containing 155 articles, is divided into 10 sections.

Section I gives only general provisions about the freedom of industrial pursuit, the abolition of limitations, and the general principles upon which freedom of industry is based. It also stipulates that the Industrial Code has no application to fisheries, drug stores, education of children, the practice of law or notary public, immigration and emigration, insurance, railroading, public transportation, legal relations of seamen and sea vessels, mines, practice of medicine, sale of drugs, the business of lotteries, and stock raising.

Section II deals with permanent industrial establishments, giving the general provisions about same, also the provisions for those establishments which need a special license of authorization; it also treats of industrial rights and powers.

Section III deals with itinerant trades.

Sections IV and V deal, respectively, with markets and taxes.

Section VI deals with trade associations, handicraft unions, labor organizations, etc.

Section VII, the most important one in the code, deals with industrial workers and contains the general provisions on apprenticeship, technical conduct of industries, and special provisions for all industrial establishments having less than 10 workers, for those having at least 10 workers, and for those having at least 20 workers. The section also deals with the matter of assistants, apprentices, and workers in commercial positions, and also embraces the important provisions for the enforcement of the Industrial Code.

Section VIII contains the provisions for the establishment of various sick and other benefit funds.

Sections IX and X contain the statutory provisions and the penalties and fines imposed.

ADMINISTRATION OF THE INDUSTRIAL CODE.

The Industrial Code does not apply, as far as the administration by the industrial inspectors is concerned, to mines, to State industries, to taverns, to agrarian and forest industries, to building, construction, to commerce, to the army and navy, and State railroads, and to boiler inspection.

Mines and quarries are under the jurisdiction of a separate mining inspection department. The police authorities have charge of the administration of the protection of workers in commerce and trade; the persons working in State departments are under the protection of the State ministers in charge of these departments.

The Imperial Government administers all the laws for the protection of workers in the army and navy as well as State railroads (in Bavaria and Württemberg the State industries connected with railroads are under the jurisdiction of the industrial inspectors). Boiler inspection is at present practically out of the jurisdiction of industrial inspectors, and is in the hands of special boiler inspection associations. During 1913 the State of Saxony was the last to take boiler inspection from the jurisdiction of the industrial inspectors.

According to article 139b and the order of the Minister of Commerce and Industry, the administration of the Industrial Code applies to the following:

1. The provisions for Sunday rest with the exception of the provision for Sunday rest in commercial establishments (arts. 105a, 105b, par. 1, and 105c to 105h).
2. The provisions for sanitation, health, and prevention of accidents according to articles 120a to 120f.
3. Provisions of articles 133g to 134h, relating to hours of labor, to wages, fines imposed upon workers, and other working regulations.
4. Provisions of articles 135 to 139aa, relating to employment of women and of young persons and children.
5. The supervision of those establishments which, according to article 16, need license of authorization.
6. The supervision over the enforcement of those articles of the Industrial Code relating to work books, certificates, and wage payment.

Special attention must be paid by the industrial inspectors to the following:

1. To the establishments the supervision of which demands technical knowledge and experience which can not be expected from the ordinary police authorities.
2. The establishments the conduct of which is accompanied with dangers to life and health of the workers or with injurious influences upon the neighborhood.

3. The establishments the conduct of which requires special regulations according to the various articles of the Industrial Code.

APPLICATION OF INDUSTRIAL CODE TO VARIOUS KINDS OF ESTABLISHMENTS.

The Industrial Code applies in some or all of its provisions to all kinds of industrial establishments, factories, workshops, or domestic-work places where any manual work is being done, except such work which a person or his own children are doing for their own use and consumption. The law does not give special definitions of factories, workshops, or domestic workshops, but makes certain distinctions according to the number of persons employed or the kind of establishment, as follows:

1. Workshops with motor-driven machines, no matter how many persons are employed therein.
2. Workshops or factories with less than 10 persons employed therein as a rule.
3. Workshops or factories with at least 10 persons employed therein at all times.
4. Workshops or factories with at least 20 persons employed therein at all times.

So far as sanitary conditions are concerned, practically all establishments, irrespective of the number of workers therein, have to comply with the provisions of article 120. The distinctions which are made as to the kinds of establishment relate mostly to the subject of the work of women and young persons. According to the new home work law of December 20, 1911, all home work is regulated under the Industrial Code and is under the jurisdiction of the industrial inspectors and the police authorities, so that the industrial inspectors at present have practically the administration of the protective laws from the smallest establishment in a tenement house to the largest works in the State.

PROVISIONS OF THE INDUSTRIAL CODE FOR THE PROTECTION OF WOMEN AND CHILDREN, AND CONCERNING INDUSTRIAL CONDITIONS.

The following is a brief résumé of some of the provisions of the Industrial Code to be administered by the industrial inspectors.¹

Provisions as to hours of labor.

1. Males over 16 years of age—No restrictions.
2. Female workers over 16 years of age—
 - (a) Work prohibited between 8 p. m. and 6 a. m.; also after 5 p. m. on Saturdays and day before holidays; at least 11 hours night rest.

¹ No attempt has been made here to present an exhaustive résumé of all the provisions of the German Industrial Code. As far as the provisions relating to children and young persons are concerned, a more detailed account may be found in the article on "Child labor legislation in Germany," by C. W. A. Veditz, in Bulletin of Bureau of Labor Statistics No. 89.

2. Female workers over 16 years of age—Concluded.
 - (b) Duration of work not more than 10 hours outside of meal pauses, 8 hours on Saturdays and day before holidays.
 - (c) Pauses—1 hour at midday; 1½ hours for females who have to care for their houses.
 - (d) Work prohibited for 8 weeks after parturition, unless some time has been taken before parturition; in any case for not less than 6 weeks after confinement.
3. Young persons between 14 and 16 years of age—
 - (a) Work prohibited between 8 p. m. and 6 a. m.; at least 11 hours night rest; girl workers of this age are not allowed to work on Sundays nor after 5 p. m. on Saturdays and day before holidays.
 - (b) Duration of work not over 10 hours daily outside of pauses, (Children 13 and under 14 years of age not more than 6 hours daily outside of pauses.)
 - (c) Pauses—One-half hour pause for those who work not over 6 hours per day; for those working 4 hours before noon and 4 hours after noon, 1 hour at midday; for those working more than 4 hours before and after noon, one-half hour in forenoon, 1 hour at noon, and one-half hour after noon.

Young workers must remain as much as possible in the free air during the pauses, and may stay in the workrooms only when the work is entirely stopped in the parts of establishments where they are working.

Boys and girls under 13 years, and those older who have not completed their school instruction, are regarded as children. Grand-children, brothers, sisters, nephews, and nieces, and also adopted children are included in the term "own children."

Provisions relating to industrial conditions.

All sanitary regulation of factories and workshops, and all provisions for prevention of accidents and for the regulation of dangerous trades are based upon article 120a of the Industrial Code.

Employers are obliged to establish, maintain, and regulate their establishments, workrooms, machines, and utensils so as to protect the workers, as far as the nature of the industry permits it, against dangers to life and health.

Especially are they to provide for sufficient light, air space, and air change, the removal of dust, gases, and fumes arising or developing in the process of the industry.

They are also to provide such devices as are necessary for the protection of the workers against contact with dangerous machinery or parts of machines or against any other dangers which are to be found

in the nature of the industrial processes; also against those dangers which arise from factory fires.

Finally, provisions must be made for the order of the industry and the conduct of the workers which would assure the carrying on of the industrial processes without danger.

Owners of establishments must provide and maintain such devices and make such orders for the conduct of workers in the industry as are necessary for the maintenance of morality and good conduct therein.

The sexes must be separated in so far as the nature of the industrial process permits or in so far as other provisions do not insure the maintenance of good morality and good conduct.

In establishments where because of the nature of the process it is necessary for the workers to undress themselves and to cleanse themselves after work, special wash and dressing rooms must be provided.

Article 120d provides that the police authorities (including the industrial inspectors) may issue special orders for the safety devices or other provisions of articles 120a to 120c for individual establishments.

According to article 120e, the Federal Council is empowered to issue special rules and regulations for certain kinds of industries or establishments which may be regarded as dangerous to life and health.

SPECIALLY REGULATED INDUSTRIES.

Based upon the provisions of article 120e, the Federal Council has issued orders for the special regulation of certain industries and industrial establishments. The provisions relate to prohibition and restriction of the work of women and children, and special sanitary provisions, and preventions of dangers for adults as well. The industries specially regulated are the following:

The manufacture of lead colors and other lead products; the manufacture of cigars; the manufacture of alkali-chromates; printing offices and type foundries; the manufacture of electric accumulators, with lead and lead compounds; horsehair spinning, and the manufacture of hair and bristle goods and brushes; making phosphatic manure out of basic slag from the Bessemer process; zinc works; the manufacture of vulcanized rubber products; glass works, glass cutting, glass etching, and sand blasting; quarries and stone cutting; the manufacture of sexual appliances, etc.; lead works, enameling, lacquering, sign painting, house painting; whitewashing and pargeting; rolling mills and forges; brick works; the manufacture of chicory; sugar refining and the manufacture of raw sugar; bakeries; the manipulation of fibrous materials, animal hair, refuse, and old rags; hotels and taverns; flour mills; canning and preserving fish, fruit, and vegetables; dairies; chemical cleaning establishments; gas power

plants; the manufacture of mirrors; spinning mills; the manufacture of heavy iron products; coal mines; and the manufacture of water gas.

INDUSTRIES REQUIRING SPECIAL AUTHORIZATION.

Beside the industries which are regulated by the Federal Council because of some special danger to health or life, there are the provisions of article 16 for those industries and industrial establishments which may become a public nuisance. For the establishment of works of this kind it is necessary to have a special authorization, which is also required in case of removal of an industry from one place to another place, or in case of large additions or reconstruction of the establishment. The applications for authorization must be presented to the president of the government district in which the establishment is located, and such applications are examined by the various members of the district government in their special jurisdictions. Thus, the application must be passed by the district official architect and construction engineer, police authorities, and such other officers as the nature of the industry or establishment may specially indicate.

The owners of the establishments must present with the application the required drawings and descriptions of their plans.

There are many provisions in the code as to the procedure for application and for judging the merits of the application by the various experts, as well as for the appeal of owners of establishments against their decision. Objections and appeals by these owners are finally adjudicated by the Minister of Commerce and Industry with the advice of the experts in his department.

Article 16 enumerates 26 kinds of industries and industrial establishments which require a special authorization; and by special provision the Federal Council may extend the number of the industries and establishments, and has extended it to 10 groups of industries not included in article 16.

EXCEPTIONS AND EXEMPTIONS.

Certain exemptions from the provisions of the Industrial Code may be given. The authorities who are allowed to make such exceptions and give such exemptions are the following:

(1) The Federal Council, (2) the higher administrative authority, which in Prussia is the president of the district government; in other States the president of each circuit or district, and (3) the industrial inspectors and police authorities.

The exemptions and exceptions which are given relate as a rule only to the permission for overtime and Sunday work of women and young persons, and are given only in cases of need and for special industries as well as special seasons and terms during the year. The

character and number of the exceptions and exemptions and the number of persons whom they affect, are to be reported upon in the annual report of the inspectors with the reasons for allowing those exemptions and exceptions. Exemptions which are given by the police authorities must have the approval of the industrial inspectors; and all exemptions given by industrial inspectors are communicated to the police authorities.

PENALTIES AND FINES.

Violations of the paragraphs and provisions of the Industrial Code lead to the imposition of various penalties. These penalties include fines and imprisonment.

The industrial inspectors have nothing whatever to do with the criminal or other proceedings against employers, except as far as they act either as witnesses or as experts. All the proceedings for violations as well as for the imposition of penalties are conducted by the State or the district government prosecutors at the initiation of the police authorities.

All violations concerning hours of labor and the provisions for employment of protected persons are immediately referred by the industrial inspectors to the police authorities. In all violations against the provisions relating to life, health, and protection of workers against dangerous machinery and accidents, the industrial inspector gives a written warning to the owner of the establishment, requesting him to remedy the defects found, under the control either of the inspectors or the police. If the violations are not immediately removed, the police authorities are notified and are then required to begin court proceedings.

The extent of the fines and penalties imposed by the court differs according to the character of the violation, and is usually increased in case of repeated violation.

ORGANIZATION FOR INDUSTRIAL INSPECTION.

The Industrial Code is based upon imperial legislation and therefore the general laws for the protection of workers are uniform throughout the States of the German Empire. The administration of the labor laws, however, is a matter of State control, each State having the sole jurisdiction over the administration and the regulation of industrial inspection within its boundaries. There is therefore no uniformity in the organization of the administrative functions of factory inspection, each State having the form of organization which seems best suitable for its purposes.

The imperial supervision over the administrative organizations of each State is very slight. The budget of the factory inspection department of each State is a matter of State control; the reports of the

inspectors are directed to the Minister of the Interior, to the Minister of State, or to the Minister of Commerce and Industry. The Federal Council (*Bundesrat*) may issue special rules and regulations for all the States, but does not interfere in the administrative functions of the factory departments of the States. We find a variety of forms of organization in factory inspection in Germany. In Prussia the organization is based upon a territorial district division, and is entirely decentralized, in that there is practically no organized union of all the district inspectors nor any supreme head or director of the whole factory inspection force. On the other hand, in Baden we find a highly centralized form of organization with a responsible director at the head of the department, with a general functional assignment of most of the inspectors, although there is also a territorial subdivision. Between these two extremes of the forms of organization there are a number of States like Saxony, Bavaria, Württemberg, and others where the form or organization in some respects approaches that of Baden, while in others it is similar to that of Prussia.

PRUSSIA.

At the head of the factory inspection department in Prussia is the Ministry of Commerce and Industry, which issues the special rules and regulations for the administrative guidance of the inspectors, passes upon the qualifications and examinations of the inspectors, and appoints all the industrial inspectors and their assistants.

The State is divided for administration purposes into government circuits, which correspond to the seats of the police and other Government authorities. At the end of 1912 there were, according to the report (*Jahresberichte der königlich preussischen Regierungs- und Gewerbeberäte, 1912, page XXXII*), 34 government circuits. This was increased in 1913 to 37.¹

Each of the government circuits has its bureaucratic head in the person of the president or political chief of the district. This higher official of the circuit is also the nominal head of the factory inspection department as well as of all other departments in his district. Directly under him and as a part of the government council of the district stands the state and industrial councilor (*Regierungs- und Gewerbeberater*) of the circuit, who is appointed by the king, and who has the supreme charge of all the industrial inspectors in the districts in his circuit. The other industrial inspectors are appointed by the Minister of Commerce and Industry. It is usual for each state and industrial councilor to have also one or more so-called industrial

Beilage zu Nr. 14 des Ministerial-Blatts. Handels- und Gewerbe-Verwaltung, Berlin, Montag den 26. Mai 1913. Übersicht über die Organisation des Gewerbeaufsichtsdienstes in den einzelnen Regierungsbezirken. (Stand vom 1. Juni 1913.)

technical assistant acting under him and substituting for him during vacations, etc.

The state and industrial councilor of the circuit is a member of the government council, and has offices usually in the county or municipal buildings. His clerical assistants belong to the general offices of the Government and are not considered a part of the factory department.

The size of the government circuits varies; some of them may be very small and may not have any district division or any industrial inspectors besides the state industrial councilor; others may be divided into 10 or more districts. For instance, Berlin, presided over by "Privy Councilor" Karl Hartmann, with two industrial councilors as his assistants, has 13 districts and embraces the whole territory of Berlin, Charlottenburg, and a large part of the suburbs of Berlin. The office of the privy councilor is in the Polizeipräsidium in Berlin, the seat of the police authorities in the district.

The 37 government circuits are presided over by 37 "state and industrial councilors," and are divided into 188 districts. Each of the 188 districts is under the charge of an industrial inspector, who usually also has the title of industrial councilor. Within his district each inspector has supreme charge of all the establishments to which the Industrial Code applies.

The relations between the district industrial inspector and the circuit state and industrial councilors are not very close. The district inspector reports annually to the circuit industrial councilor on the condition of his district and on the work performed by him during the year. The office of the district inspector is usually visited by the circuit industrial councilor once a year. In case there are appeals from the decision of the district inspector as to the applications for authorization, then these appeals are referred to the industrial councilor of the circuit. As a rule the various district inspectors come together once a year for conferences. Each district industrial inspector may have one or more assistants, either industrial assessors or industrial referendars, or a female industrial assistant.

Within each district there is no territorial subdivision, but each assistant is assigned to work by the district inspectors according to the needs and exigencies of the work. There is no direct connection or relation between the 37 heads of the factory government circuits; they are called in for a yearly conference with the minister of commerce and industry, which is the only opportunity they have to discuss industrial matters and to formulate some methods of uniform procedure.

The total number of officials in the factory inspection department of Prussia in 1912 and 1913 was as follows:

OFFICIALS IN THE FACTORY INSPECTION DEPARTMENT OF PRUSSIA, 1912 AND 1913.

	1912	1913
Number of districts.....	34	37
State and industrial councilors (heads of circuits).....	33	35
Assistants to above.....	9	9
District industrial inspectors.....	180	187
Male assistants (industrial assessors).....	92	93
Female assistants.....	14	18
Total.....	328	342

The whole service is divided into the following four grades: State councilor, industrial inspector, industrial assessor, and industrial referendar. The industrial inspector who has charge of a district usually bears the title of industrial councilor because he is a member of the government council of his administrative district. It is from the rank of the industrial councilors that the chiefs of each government circuit are recruited.

An industrial assessor is an inspector who has been permanently appointed, and is assisting the district inspector in his work.

An industrial referendar is a probationary inspector who may or may not eventually remain with the service. When an industrial referendar is permanently appointed he becomes an industrial assessor and remains such from five to more years, when he becomes an industrial inspector. He is then given charge of a district or remains as an assistant in another district.

According to a recent decree industrial inspectors in Prussia are given authority to issue certain orders relating to compliance with the Industrial Code which heretofore have been issued by the local police authorities of that country. The following extract relating to this decree is from an article in *Soziale Praxis* of January 22, 1914:

Increase in the authority of industrial inspectors in Prussia.¹

According to article 139b, paragraph 1, of the Industrial Code, industrial inspectors are on principle in the exercise of factory inspection given "all the official rights of the local police authorities." In Prussia, however, the issuance of certain orders relating to compliance with provisions of the Industrial Code as well as the reporting of contraventions of these provisions to the state's attorney has up to the present time been a part of the duty of the police authorities.

This has now been changed. A decree issued by the Minister of the Interior conjointly with the Minister of Commerce and Industry (*Ministerialblatt der Handels-und Gewerbeverwaltung*, vol. 14, No. 1, Jan. 10, 1914) declares, that it seems necessary "not to withhold any longer from the industrial inspectors the exercise of the authority to issue independently the orders designated in articles 120d, 120f,

¹ From article "Erweiterung der Befugnisse der Gewerbeaufsichtsbeamten in Preussen," in "*Soziale Praxis*," vol. XXIII, No. 17, p. 47, Berlin, January 22, 1914.

paragraph 2, and 137a, paragraph 3, of the Industrial Code granted them by article 139b, paragraph 1, of this code.

Article 120d authorizes the inspectors to issue orders in individual establishments relating to the execution of those measures which are required for the carrying out of the principles contained in articles 120a, b, and c (art. 120a, protection of life and health of factory workers; art. 120b, maintenance of good morals and decency; art. 120c, special protection of workers under 18 years of age), and seem practicable according to the nature of the establishment. Article 120f, paragraph 2, grants authority to issue for establishments in which, through excessively long hours of labor, the health of workmen is endangered, orders regulating the duration, beginning, and end of the legally permissible hours of labor and rest periods. Article 137a limits the giving out of work to be taken home for female and juvenile workers.

The ministerial decree provides, therefore, that article 8 of the service regulations of March 23, 1892, for industrial inspectors be amended as follows:

Industrial inspectors upon finding during their inspections objectionable conditions, shall as a rule at first attempt to bring about their removal by means of friendly remonstrance and suitable advice. If this method is unsuccessful or if means of compulsion seem required from the beginning, the industrial inspectors shall themselves by means of a police decree and with explicit reference to articles 120d and 139b of the Industrial Code, order the carrying out of the measures which seem required for the enforcement of the provisions contained in articles 120 a, b, and c of the Industrial Code and according to the nature of the establishment seem practicable. * * * The decree is to be transmitted to the owner of the establishment by mail with return receipts. A copy of the decree shall also be sent to the local police authorities, and if issued in order to prevent accidents, also to the trade accident association to which the establishment belongs.

The industrial inspectors, if they deem it necessary, shall likewise independently issue the orders designated in article 120, paragraph 2, and in article 137a, paragraph 3, of the Industrial Code.

If the industrial inspectors establish a legally punishable contravention of protective labor provisions they shall, unless special circumstances in an individual case require more lenient treatment, see to it that punishment is meted out. In case of contraventions punishable according to article 146 of the Industrial Code, they shall place information and a request for punishment with the first state's attorney of the proper superior court (*Landgericht*), and in case of contraventions punishable according to articles 146a to 150 of the Industrial Code, with the state's attorney of the proper district court and request transmittal of a transcript of the court decision. In each case in which they have requested criminal procedure, industrial inspectors must forward a copy of this request to the local police authorities.

If in the case of contraventions punishable as misdemeanors according to articles 148, 149, 150, and 150a of the Industrial Code, it is to be supposed that a fine of not more than 30 marks (\$7.14) or imprisonment for not more than three days will be in question, and that the determination of the fine or sentence is most suitably left to the police authorities, the industrial inspectors shall not report these contraventions to the state's attorney but to the local police authorities.

We consider this modification of the rights of industrial inspectors as very gratifying. The industrial inspectors are without doubt, by their professional training and official position, far better able to judge the necessity and practicability of the protective labor provisions enumerated in the decree than are the police authorities. The necessary consequence of this fact is that the issuing of orders in pursuance of these provisions and the reporting of contraventions must be placed in the hands of the industrial inspectors. The decree of the Minister of Commerce and Industry and the enlargement and strengthening of the official rights of the industrial inspector provided in it

will result in a more pertinent, prompt, and effective enforcement of some highly important protective labor provisions of the Industrial Code.

Salaries, compensation, etc.

The industrial inspectors of all grades and classes are incorporated in the bureaucratic hierarchy of the Prussian Government, and each grade corresponds to the grade in which a number of officials of the same rank in other departments also belong. For instance, the industrial assessors belong to so-called fifth rank of the higher officials, while the industrial referendarers belong to the second class of the middle officials.

The salaries of the various grades of inspectors are as follows:

1. Industrial referendarers receive no salary.
2. Industrial assessors receive 2,700 marks (\$642.60) the first year, 3,075 marks (\$731.85) the second year, and 3,450 marks (\$821.10) the third year.
3. Industrial inspectors receive 3,000, 3,600, 4,200, 4,800, 5,400, 6,000, 6,600, and 7,200 marks (\$714, \$856.80, \$999.60, \$1,142.40, \$1,285.20, \$1,428, \$1,570.80, and \$1,713.60).
4. The state and industrial councilors receive 4,200, 4,800, 5,400, 6,000, 6,600, and 7,200 marks (\$999.60, \$1,142.40, \$1,285.20, \$1,428, \$1,570.80, and \$1,713.60).

The salaries of the inspectors range therefore from 2,700 marks (\$642.60) to 7,200 marks (\$1,713.60). Besides the salary, inspectors of various grades receive certain sums for their expenses. Industrial inspectors in charge of an office get 3,000 marks (\$714) a year for the expense of office rent, traveling, and all office expenses including the hiring of clerks. Besides they receive 300 marks (\$71.40) for each assistant they have in their office. The district inspector pays his own office rent and pays for the hire of his clerks.

The salaries of the clerks in the industrial inspection are very low, and according to a petition which these clerks have lately presented to the Government, their condition is very bad on account of their low salaries. "Of 66 employees, 8 received from 40 to 50 marks (\$9.52 to \$11.90) per month. Clerks between 30 and 50 years of age, and who were in the service for 8 years got from 70 to 80 marks (\$16.66 to \$19.04) monthly."¹

The industrial assessors get from 900 to 1,200 marks (\$214.20 to \$285.60) for all their expenses in addition to their salaries. The industrial councilors and state councilors, who have official visits to make, are allowed traveling expenses which amount to their railroad fare and to 15 marks (\$3.57) a day for the higher officials. The salaries increase, as we have seen, from year to year until they get to the

¹ Petition No. 1210, declined Feb. 26, 1913.

maximum. Industrial councilors are entitled to six weeks annual vacation; inspectors to five, assessors to four, and referendaris to three.

As the inspectors of the factory-inspection department are incorporated in the Prussian bureaucratic system, they are entitled to and receive pensions during disability, and after 20 to 25 years of service. This pension is based upon the salary of the officials, upon their rank, the number of years in service, and their age at retirement. The amount of pension varies from one-third to two-thirds of the salary received at the time of retirement.

The preliminary preparation of a candidate for positions in the factory department is so long, and the qualifications required from a would-be inspector are so high, that once inspectors are appointed their position is practically permanent and is assured for life; and their tenure of office is secure, while the yearly increment of salary and promotion go on regularly with the years of service until their final retirement from service on account of disability, age, or death. The security of tenure of office is in part a compensation for the small salaries which officials receive; and there is a saying in Germany which illustrates this point: "Die Beamten haben nichts, aber das haben sie sicher." (The officials have nothing, but of this at least they are secure.)

BADEN.

As an example of a centralized organization quite the opposite of that existing in the Factory Department in Prussia, we may cite the Kingdom of Baden.

The inspectorial organization of Baden is strictly centralized, with one chief who has the title of superior state councilor (*Ober Regierungsrat*) and is the director of the whole factory-inspection department in Baden. The central office is located in Karlsruhe, which is the seat of the director and of all of his subordinates throughout the State. Here are located fine offices with clerical help. All the inspectors report in this office daily, except such inspectors as are sent out from the central office throughout various districts in the State. In this office are found an up-to-date card catalogue system, five clerks, a number of typewriting machines, etc. The annual budget of the whole department is about 100,000 marks (\$23,800). At the head of the department is the director, Dr. Karl Bittmann, who has been in the department practically since its inception. His assistant or substitute is State Councilor Dr. Foehlich.

The whole inspectorial force consists of 20 inspectors, 2 of whom are women. Four inspectors assigned to the office have no districts, but have special functions. Of these four inspectors, one is Industrial Inspector F. Holzmann, M. D., who is an industrial physician

(*Gewerbearzt*). Dr. Holzmann was the first physician to be appointed as regular inspector and served as such at the beginning of his service, but later was assigned to such duties as called for special medical knowledge.

Another of the functional officials attached to the central office is a woman industrial inspector, Doctor of Jurisprudence Angelica Siquet, who is said to be the only academically trained woman factory inspector in Germany. She does not occupy the usual position of female factory inspectors in other States, but is assigned to special investigations by the central office.

Besides these two industrial inspectors there are also attached to the central office one technical assistant for construction and quarries and one technical assistant, a woman, for home industries. Outside of these inspectors the State is divided into four districts, but owing to the comparatively narrow extent of the territory, all districts are supervised from the central office in Karlsruhe. The district inspectors go into the districts for several days a week and return to the central office for the rest of the week to complete their clerical work. They do such other work as is necessary. Each of the districts is in charge of an industrial inspector with a scientific assistant and a technical assistant. For instance, in the district of Mannheim, Industrial Inspector Dr. of Engineering F. Ritzmann is the district inspector; a state engineer is his scientific assistant and another engineer is his technical assistant.

The inspectors hold weekly conferences under the presidency of the director, and the whole system of inspection and procedure is uniform and under the direct supervision of the director. A register of all shops for which the police do the inspection work is kept, and Dr. Bittmann calculates that about half of the inspectorial work is done by the police. The police make also two semiannual reinspections throughout the State for gathering the data on the number of workers, children, etc., in the factories.

The relations with the labor organizations are said to be good; complaints are attended to promptly, but no educational activities are allowed to the inspectors. Several inspectors of the trade associations are cooperating with the factory inspectors in the endeavor to prevent industrial accidents. Notices of violations are sent to the police for prosecution. Exemptions and exceptions which are recommended by inspectors are referred to the police.

Salaries, compensation, etc.

The inspectors are divided into four grades: (1) Industrial assessors, (2) industrial inspectors, (3) special inspectors, and (4) supervising inspectors. Besides their salaries, inspectors receive what is for Ger-

many a substantial addition, called rent money, and a sum for traveling expenses.

The following table shows the sums received by the inspectors of each grade:¹

Grade.	Salary.	Rent.	Travelling expenses.
First.....	\$595. 00 to \$1, 285. 20	\$214. 20	\$33. 30
Second.....	714. 00 to 1, 380. 40	249. 90	89. 25
Third.....	833. 00 to 1, 523. 20	249. 90	89. 25
Fourth.....	1, 071. 00 to 1, 856. 40	285. 60	119. 00

SAXONY.

The organization of industrial inspection in Saxony is somewhat similar to that of Prussia, although there are present indications of reorganization by which the department will become somewhat more centralized. The factory department of Saxony is under the general direction of the Ministry of Interior and under the immediate supervision of Dr. Schlippe, who is the central industrial inspector. He has also assigned to him a substitute or a technical expert in his work in the ministry. The offices of the central inspector are at the Ministry of Interior.

The central industrial inspector is a part of the Ministry of Interior and has supervision over the administration of the labor laws, the inspection of boilers, the final decisions as to industrial establishments, manufacture of explosives, acetylene, inspection of elevators and hoistways, also supervision over the technical schools in the Kingdom.

The inspectorial service under the central inspector and his assistant is divided into two grades: (1) The industrial inspectors who are part of each district government and are the technical experts of each government, as well as the supervisors over the factory inspectors in their districts, and (2) the factory inspectors and their assistants in each district.

The higher technical industrial councilors who are attached to each government district, of which there are five in the Kingdom, have not only the supervision of the district inspectors, but are also the advisers of the central government of each district. These councilors are recruited from the older industrial inspectors, who, because of their years of service, and because of their technical knowledge and experience, are called to these higher positions. As a rule, each of the five government circuits has not only an industrial councilor but also an assistant. It is characteristic of the organization of Saxony that the assistant to the industrial councilor in the super-

¹ These figures were supplied by Dr. Bittmann.

vision of the whole government circuit is usually a woman, whose title is "industrial supervision officer."

Each of the five government circuits is subdivided into several districts. The whole Kingdom is divided into 15 inspectorial districts with about 3,000 establishments and 53,000 workers in each. Each of the district inspectors, who receives after a certain number of years of service the title of "industrial councilor," has, as a rule, about three assistants. The offices of each district inspector are usually in Government buildings or in offices which are rented by the State, which pays all the expenses of the offices, as well as for the hiring of clerical assistants.

Twice a year the police make a general reinspection of all the industrial establishments for the purpose of a census of the working population.

The industrial inspectors are mostly technically trained men and, according to the circular of February 11, 1882, the industrial inspectors have a right to call in special inspectors trained in chemistry as additional councilors to the ministry; but lately several chemists have been appointed as industrial inspectors, so that at the present time there is no need of the employment of officers outside of the service. There are no medical men in the service, but the local district physicians are obliged to participate in the work of industrial inspection, especially that which refers to the authorization of certain dangerous establishments.

According to the latest report (1912), the force of inspectors consists of 66 persons, as follows: (1) Five State and industrial councilors in charge of the five State districts; (2) 15 industrial councilors and inspectors in charge of the 15 districts; (3) 34 industrial assessors; (4) 6 women inspectors; and 6 chemical experts. In July, 1913, three assistants from the working class were appointed. According to the latest advices from Saxony, the boiler inspection, which was until 1913 one of the functions of the industrial inspectors, has been taken out from their jurisdiction and transferred to the boiler inspection association.

Salaries, compensations, etc.

The salaries of the various grades of inspectors are as follows:

The salaries of the State and industrial councilors in charge of the five special districts range from 6,900 to 7,800 marks (\$1,642.20 to \$1,856.40), and increase 450 marks (\$107.10) every year. Besides, they receive "rent money," according to the place of service, from 540 marks to 720 marks (\$128.52 to \$171.36) per year.

The industrial inspectors in charge of districts receive from 4,800 to 6,900 marks (\$1,142.40 to \$1,642.20), with an increase of 420 marks (\$99.96) every three years.

The assistant inspectors receive yearly from 2,400 to 4,200 marks (\$571.20 to \$999.60), with an increase of 200 marks (\$47.60) every two years.

The industrial inspectors receive "rent money" according to the place of service, from 540 to 720 marks (\$128.52 to \$171.36) per year, while their assistants receive from 450 to 540 marks (\$107.10 to \$128.52). These salaries and rental additions do not include traveling expenses, which are paid extra.

The salaries of the two assistant inspectors in the quarries range from 1,800 to 2,400 marks (\$428.40 to \$571.20), with an increase of 150 marks (\$35.70) every three years, and with 360 marks (\$85.68) yearly rental addition.

The assistants coming from the working class receive only 1,800 marks (\$428.40) a year.

The female inspectors receive a salary ranging from 1,800 to 2,400 marks (\$428.40 to \$571.20) per year, with an increase of 150 marks (\$35.70) every three years, and from 360 to 450 marks (\$85.68 to \$107.10) for "rent money."

BAVARIA.

The organization of the inspectorial service in Bavaria consists of 42 officers, including the central inspector and the state industrial physician. The general supervision of industrial and factory inspection in Bavaria is under the jurisdiction of the Ministry of State; but the immediate supervision of the whole department is in charge of a central inspector, Superior State Councilor (*Oberregierungsrat*) E. Priem.

The whole kingdom is divided into 11 districts. At the head of each district stands an industrial councilor with several assistants.

All inspectors who have an academic training have the rank of industrial councilors, all the others being called industrial supervising assistants, both male and female. The industrial councilors at the head of each district are also members of the local government of each district. They have, with one exception, their offices in State buildings.

The district inspectors work independently of the central inspector or of each other. The assistants in each district work under the immediate supervision of the industrial councilor. The inspectors usually have an annual conference with the central inspector at the Ministry of State.

There are six women inspectors in the various districts who mostly are assigned to work in the inspection of home industries and of those factories where a large number of women are employed.

Since 1909 there has been appointed a physician who has the title of state industrial physician (*Landesgewerbearzt*). He is assigned to

the central office at the Ministry of State, and has supervision of the medical functions connected with the work of industrial inspection. The present occupant of the office, Dr. F. Koelsch, is well known as an authority on industrial hygiene. The work of Dr. Koelsch is referred to on page 159.

WÜRTTEMBERG.

According to the report for 1912 from Württemberg there were then 19 persons in the industrial inspection department; four were industrial inspectors and heads of each of the four districts into which the Kingdom is divided, seven were industrial assessors, five were industrial assistants, and three were women assessors. In this State there is a combination of the centralized and decentralized organization.

There is in Stuttgart a central commission for industry and commerce, of which all the industrial inspectors are members, and under the supervision of which they work. All the work throughout all the districts is under this central authority. However, each district inspector is independent and has full charge of the assistants under him. The assistant inspectors who are academically trained are called industrial assessors, and those coming from the working class are called assistants to the industrial inspectors.

Through the central commission all the inspectors come in close contact with each other for frequent conferences, which lead to a more uniform procedure in their work of inspection, as well as in their clerical work.

HESSE.

The State of Hesse is divided into five districts, each presided over by an industrial councilor, of whom there are five. These five industrial councilors are assisted by five industrial assistants, of whom two are women, and five come from the working class; so that the entire force of the industrial inspection department of the State consists of 15 persons.

OTHER STATES.

Of the other German States the latest reports of 1912 give the following numerical data:

Mecklenburg-Schwerin.....	{ 1 industrial inspector. 1 assistant inspector.
Saxe-Weimar.....	{ 1 industrial inspector. 1 assistant inspector. 1 female assistant inspector.
Mecklenburg-Strelitz.....	{ 1 industrial inspector. 2 industrial inspectors.
Oldenburg.....	{ 2 assistant inspectors. 1 female assistant inspector.

Brunswick	{ 1 industrial councilor. 2 industrial inspectors.
Saxe-Meiningen.....	{ 1 industrial inspector. 1 female assistant inspector.
Saxe-Altenburg.....	{ 1 industrial inspector. 1 assistant inspector. 1 female assistant inspector.
Saxe-Coburg-Gotha.....	{ 1 industrial inspector. 1 female industrial inspector.
Anhalt.....	{ 1 industrial inspector. 1 assistant inspector. 1 female assistant inspector.
Schwarzburg-Sondershausen.....	1 industrial inspector.
Schwarzburg-Rudolstadt.....	1 industrial inspector.
Waldeck.....	2 industrial inspectors.
Reusz-Greiz.....	1 industrial inspector.
Reusz-Schleiz.....	{ 1 industrial inspector. 2 male assistant inspectors.
Schaumburg-Lippe.....	1 industrial inspector.
Lippe.....	1 industrial inspector.
Lubeck.....	1 industrial inspector.
Bremen.....	{ 2 industrial inspectors. 3 assistant inspectors. 1 female assistant inspector.
Hamburg.....	{ 2 industrial councilors. 4 industrial inspectors. 3 assistant inspectors. 2 female assistant inspectors.
Alsace-Lorraine.....	{ 6 industrial inspectors. 2 assistant inspectors. 1 female assistant inspector.

PERSONNEL, QUALIFICATIONS, AND CIVIL SERVICE EXAMINATIONS.

Reference has already been made to the fact that the first factory inspectors appointed in 1853 had no special qualifications for their positions, and that only with the appointment of the subsequent factory inspectors in the early seventies has an attempt been made to limit the appointment of factory inspectors to those who have special technical training.

The main arguments of the advocates for the limiting of factory inspection to specially appointed officials were the lack of knowledge and general education on the part of the police officials who were hitherto in charge of the administration of the labor laws. With the extension of the scope of factory inspection to matters affecting life and health, it became necessary to select the inspectors from a class of persons who had some previous technical training and education. At first the appointments were made without regard to any examination, the ministers appointing those persons whom they thought specially qualified for the positions. After 1891, when industrial inspection was reorganized and the provision in the Industrial Code

for each State to issue special regulations for the service of the inspectors and their qualifications, it became necessary to set some standard for the inspectorial personnel.

Only in Prussia and Saxony, however, do we find detailed provisions for the selection of the personnel of the industrial inspection department. The other States, so far as could be ascertained, have no special rules and regulations.

The present methods of selecting inspectors for the industrial inspection department in Prussia are based upon an order of the Minister of Commerce and Industry, dated Berlin, September 7, 1897, and also an order of the same minister of November 13, 1897, with several amendments to these former orders, dated January 20, 1904, January 25, 1904, and May 15, 1907.

The requirements from candidates for inspectorial service are the following:

1. A certificate of graduation of nine classes of gymnasium, or what is called in German "reifezeugnis" (certificate of maturity).
2. A certificate of a district physician that the applicant is in good physical health and is free from physical defects.
3. Proof of at least three years technical study in a German high school.
4. At least $1\frac{1}{2}$ years of study of law and political sciences.

The above are the absolute requirements for candidates before they are allowed to compete for the position of probationary inspector.

If the candidate satisfies the above requirements then he is subject to two examinations and to a period of probationary work in the industrial inspection department. The two examinations are respectively at the beginning of his probationary term of service and at the end of the probationary term of service.

The first examination is equivalent to the following diplomas, which may be presented in lieu of the examination: (a) Diploma of qualification as State engineer in the construction of machinery; (b) diploma of a mining engineer or technical engineer certifying that candidate is a graduate of a mining academy or other Prussian technical high school; (c) a doctor's degree at a Prussian university when chemistry was the principal subject taken in examination; and (d) a diploma of chemist at a Prussian technical college. The candidate then makes an application to the Ministry of Commerce and Industry, giving a detailed history of his life and work until the time of his application. These applications remain in the hands of the Minister of Commerce and Industry until such a time as there are vacancies for the appointment of assistants in the industrial inspection department. When such vacancies occur, the minister usually confers with the inspector of the district in which the vacancy exists and selects from the list of applicants the man who by his history and

qualifications seems to them the best fitted for the position. There is really no competitive examination for selection of the various candidates. The minister has a right to select anyone he deems best fit. In this respect, it is of course possible for a candidate to exert some political influence, or as one inspector expressed himself, "It doesn't do any harm to be a protégé or a relative of a deputy of the Reichstag, especially if this deputy happens to belong to the party of the center."

After the candidate is selected he is assigned to a district inspection office and begins his probationary period of service.

Probationary period.

The probationary period lasts 18 months. During the probationary service, a candidate, or as he is officially called, industrial referendar, is under the immediate supervision of an industrial assessor or inspector, who acts as his preceptor, and who directs the candidate in pursuing his studies and work. The service consists (1) in an assignment to the keeping of the daybooks and other registers in the office, and as assistant in the correspondence with the various officials and with the employers, etc. During all his probationary service the referendar must keep a detailed account of all his work and report monthly upon this to his preceptor, which reports are filed by the district inspector.

The general plan of the preparation of the referendar is under the supervision of the state and industrial councilor, who reports to the state president of the circuit.

(2) During the term of service the referendar is taken by his preceptor to various industrial establishments, and shown the methods of work and inspection; he is also shown the different industrial conditions. The preceptor is instructed by the rules to confer frequently with the referendar upon technical questions, to require him to make sketches of machines and apparatus, and in general to convince himself of the progress in knowledge and experience on the part of the referendar.

The referendar may be assigned to work in other districts, if this is deemed beneficial for his study of industrial conditions. During the same period the referendar may, with the approval of his superiors, make study travels for a period not exceeding three weeks, and must give detailed report of his studies to the industrial inspector having charge of his practical education.

(3) During the last three months of his probationary period the referendar may be appointed as assistant to the inspection bureau, in order to learn the routine of work of inspection in its relation with the Government. He must participate in the conferences of

the district government and when necessary prepare reports before these conferences.

During all this period the referendar does not receive any salary whatever, except his traveling expenses. If the referendar is found to be lacking either in physical qualities or in diligence or interest in the service, then the Minister of Commerce and Industry may, on the report of the government president terminate his service.

(4) At the end of his probationary period the industrial referendar must prove his ability by "higher grade probationary work" (*grösserer probearbeit*). This consists of a report upon a theme which is given to him by the state and industrial councilor and is based upon his experience in industrial inspection in the district where the referendar served his probationary term. For the purposes of the thesis he may prepare an important report. The thesis must be written without the assistance of outsiders, and is passed on by the state and industrial councilor. It is then presented to the president of the circuit government. Should the thesis prove unsatisfactory, the industrial referendar may get an extension of six months to prepare another thesis. Should even then the work not be satisfactory, the matter is reported to the Minister of Commerce and Industry, who may either extend the probationary period for six months more or order the candidate's dismissal.

(5) After the successful termination of the probationary period with the presentation of an approved thesis, the industrial referendar must undergo an additional preparation by attending a German high school for at least three semesters. Here he must study law and political sciences, paying special attention to industrial administration, industrial hygiene, and welfare work. For this purpose he may receive a leave of absence by the government president.

(6) After completing his studies, the referendar may be admitted to the second principal examination. His leave of absence for study may be extended for six months. Referendars who show that they have completed at least three semesters of study on the same subjects before their probationary service may be allowed to compete for the second examination immediately after the expiration of their probationary service; or, if it is proven that the study has been completed in a shorter period, the allotted time of three semesters may be cut down.

Application for the entrance to the second examination is to be made not later than three and one-half years after the entrance of the referendar to his probationary service, unless this time is extended by the Minister of Commerce and Industry.

Second main examination.

The second main examination which the referendar is subjected to is both oral and written. The examination is conducted by a board of industrial supervising officials in Berlin, appointed by the Minister of Commerce and Industry.

The written examination consists of problems (*Aufgaben*) on the administration of the Industrial Code and of political science and administration. The questions are given by the chairman of the examining board; the candidates are given six weeks' time in which to answer the questions. This period may be extended to two months. At the end of this term the candidate must present his answers with the assurance that he has had no outside help in their preparation. The answers are presented to the examining board, each member of which must note his opinion when passing judgment upon the papers. Consideration must be given to the scientific conception, the conciseness, clearness, grammar, logic, and good German in which the work is expressed.

The oral examination consists of questions intended to test ability to determine and solve technical problems in actual service. Special attention is paid to the technical scientific training of the candidate and his practical experience in those branches which the candidate has been taught during his probationary service. The examination must also determine how far the candidate is conversant with the constitution of the German Empire, the Prussian State administration, and the extent as well as practical administration and enforcement of industrial supervision.

The examiners are required to determine whether the candidate has a thorough understanding of the methods of safeguarding machinery, of the principles of construction of factories and workshops, methods of heating, ventilation, and removal of dust. He must also possess a knowledge of the ordinary methods of prevention of accidents, the prevention of dangers to health which are found in various industries, and of dangers of certain industries to their immediate neighborhood. Of course, a thorough knowledge of the Industrial Code, as well as of the Workmen's Insurance Code, is absolutely required.

The candidate must pay before the application for the second examination a fee of 50 marks (\$11.90) for the examination. If such examination is repeated, he must pay again.

After the candidate has passed the ordeal described above, the Minister of Commerce and Industry appoints him as industrial assessor, and as such he is assigned to work in an industrial district, in which he usually remains about two years. Every two years or more he is sent to other districts with different industrial conditions, and after a certain number of years of service—which is very seldom less than five,

or may reach ten—is appointed as an industrial inspector and given charge of a district. Once a man is appointed industrial inspector, his tenure of office is secure; fines or charges are hardly ever made against him, and no inspector has ever been discharged.

With a preparation so long, so arduous, so important, and so thorough, there is all probability that a candidate by the time he becomes an assessor is thoroughly imbued with the importance of the service, regards it as his lifework, and is not likely to willfully commit any errors or indiscretions which would nullify all his previous preparatory work.

No special preparation is required from the women assistants, who are appointed by the Minister of Commerce and Industry on the recommendation of the state industrial councilors. Most of the women are appointed from the rank of those who have served as forewomen in large industrial establishments, and who also have certain educational status.

The only other German State that has regulations as to the qualifications, the previous study, and the probationary term of inspectors is Saxony. The requirements do not differ much from those described in Prussia. The State of Saxony, however, is more liberal, in that it allows the salary of 2,400 marks (\$571.20) to the referendar instead of compelling him to work without any salary, as is the case in Prussia. This, as was explained by Privy Councilor Schlippe, the head of the department, is due to the fact that it is quite difficult to find the proper persons to compete for the examinations without the candidates being paid during their probationary service.

Neither in Saxony nor in Prussia, nor anywhere else in Germany, does the fact that the industrial inspector needs such a long and thorough preparation before he may become an inspector excite much attention. Indeed, most of the persons interviewed stated that in the medical service or in the service of law or other branches of State service, the preparation is the same, if not longer and more difficult, and that as a rule the young men of Germany are willing to undergo this ordeal, and are prepared to pay for it with their study and preparation and enter into service when they reach the age of 26 to 30 years.

The appointment of assistant inspectors from the laboring class is usually made without special examination, and the appointments are made by the Minister of Commerce and Industry on the recommendation of the president of the government circuit. Only workers who are known to have conservative tendencies are appointed, and it is not likely that a member of the Social Democratic Party would be appointed as assistant inspector. No special examination is held; but, of course, some technical knowledge and many years of experience in work in factories is required from the candidates for such assistant inspectorship.

WORK AND METHODS OF INSPECTION.

WORK OF INSPECTION.

There is a great deal of work connected with the administration of the labor laws other than the mere inspection of the factories and workshops. This work consists in interviews with employers and workers, the conduct of the office and the office correspondence, general inquiries and investigations, inspection on complaints, investigations of accidents, investigations of plans upon which application is made for authorization of new establishments, expert testimony before court, acting as witnesses in prosecutions, participating in the deliberations of the various government bodies, and kindred work. The mere number of inspections, therefore, can not serve as a criterion either of the amount of work accomplished by the industrial inspectors or of the efficiency of their work.

The mere area of the country is not of so much consideration as the number and character of the industrial establishments which are under inspection. Of course where the territory to be traversed by the inspector is too big much time is wasted in traveling from one place to another.

The account of the work accomplished by the industrial department of each State is based upon the returns of the chief factory inspectors for 1912, which are shown in the report "Jahresberichte der Gewerbe—Aufsichtsbeamten und Bergbehörden für das Jahr 1912. Amtliche Ausgabe. Band I–IV. Berlin, 1913."

As far as the number of inspections in 1911 is concerned, we have some comparative data in a report by the chief factory inspector of Baden, for 1912.¹ According to this report, the number of inspections increased from 1907 to 1911, as per the following table:

WORK OF FACTORY INSPECTORS, BY STATES, 1907 AND 1911.

States.	Inspections.		Establishments to be inspected by each inspector in 1911.	Average number of inspections made by each inspector in 1911.	Inspections per 100 establishments subject to inspection, 1911.
	1907	1911			
Prussia.....	109,361	126,682	660	392	59.4
Bavaria.....	14,954	20,923	1,332	599	44.9
Saxony.....	22,291	25,025	659	424	64.4
Württemberg.....	13,115	14,675	812	734	90.4
Baden.....	4,821	10,465	1,142	747	65.4
Hesse.....	6,930	10,265	636	684	107.6
Alsace-Lorraine.....	2,899	5,995	1,065	545	51.2
Total in German States.....	182,963	229,959	728	432	59.4

¹ Jahresbericht des Grossherzoglich Badischen Gewerbeaufsichtsamtes für das Jahr 1912. Karlsruhe, 1913.

Prussia.

In the 34 industrial circuits of Prussia in 1912 there were altogether 169,606 industrial establishments with at least ten workers in each. In these establishments 3,579,771 persons were working, the sex and age grouping of whom were as follows:

	Number.	Per cent.
Male adults.....	2, 621, 613	73. 23
Female workers over 21 years.....	398, 404	11. 13
Girls between 16 and 21 years.....	282, 227	7. 88
Girls between 14 and 16 years.....	90, 375	2. 52
Girls under 14 years.....	1, 102	. 03
Boys between 14 and 16 years.....	184, 003	5. 14
Boys under 14 years.....	2, 047	. 06

The following figures give the number and frequency of the inspections that were made in the 34 districts in 1912:

Inspections made.....	129, 252
Night inspections.....	2, 462
Sunday and holiday inspections.....	4, 048
Establishments inspected once.....	79, 386
Establishments inspected twice.....	12, 395
Establishments inspected three or more times.....	5, 881
Inspections on reports of accidents.....	15, 127

Dividing the 144,379 inspections made during 1912 by the 180 districts, it will be found that an average of over 802 inspections were made for each of the 180 districts, which, of course, shows only a part of the work that has been done in the district. Besides, the police authorities are obliged to make a semiannual inspection of all the establishments, and therefore must have made at least 339,212 inspections during 1912, being twice the number of establishments as shown above. The inspections made by the police are mainly for the purpose of gathering data relating to the general character of the establishments and to the number of workers of various ages.

Of the 169,606 establishments, inspections were made of only 86,509, or 51 per cent. The establishments, however, which were inspected were of great importance so far as the number of workers is concerned, as 84.5 per cent of all the workers in the State were employed in these establishments. Of the establishments in which children, young persons, and women were employed, there were inspected establishments with 79.5 per cent of all the female children under 14 years, 85.1 per cent of all the male children under 14 years, 79.1 of all the female children between 14 and 16 years, 82.4 of all the male children between 14 and 16 years, and 83.8 per cent of all women employed in establishments.

In the number of factories which have been referred to in the above table are not included those under special rules and regulations, according to article 120e of the Industrial Code. Of these there were

altogether 75,713 establishments employing 173,401 workers, 11,143 (with 26,554 persons employed) of which were inspected. The number of inspections was 12,357. Therefore inspection was made of less than 15 per cent of all such factories.

The following table gives the number of violations found in 1912 in relation to the work of women in industrial establishments. Violations were found in 3,671 establishments and 727 persons were punished for such violations.

VIOLATIONS OF LAW RELATING TO EMPLOYMENT OF WOMEN IN INDUSTRIAL ESTABLISHMENTS OF PRUSSIA, 1912.

Violations of law relating to—	Number of violations.	Employees involved.
Posting of notices.....	2,545	.....
Hours of labor.....	328	2,278
Noon rests.....	422	3,053
Employment on Saturday afternoons and on eve of holidays.....	908	6,181
Night work.....	105	623
Minimum uninterrupted rest.....	17	95
Employment before or after childbirth.....	5	5
Giving work to be taken home.....	9	44

The following table gives the number of violations of the provisions relating to young persons and children working in industrial establishments. Violations were discovered in 5,858 establishments and 1,288 persons were punished therefor.

VIOLATIONS OF LAW RELATING TO EMPLOYMENT OF YOUNG PERSONS AND CHILDREN IN INDUSTRIAL ESTABLISHMENTS OF PRUSSIA, 1912.

Violations of law relating to—	Number of violations.	Employees involved.
Work books.....	1,887	.....
Registers and notices.....	8,722	.....
Exclusion of children.....	189	417
Hours of labor:		
Young persons.....	408	1,096
Children.....	234	289
Rest periods.....	558	2,652
Night work.....	90	306
Minimum uninterrupted rest.....	18	53
Employment on Sundays and holidays.....	138	247

The following gives the number of permits for overtime work on week days, except Saturdays, for adult female workers:

Number of establishments in which overtime work was permitted.....	2,238
Number of permits by higher administrative authority.....	353
Number of permits by lower authorities (police).....	4,387
Number of permits according to hours overtime permitted:	
One hour or less.....	2,125
Over 1 hour to 1½ hours.....	873
Over 1½ hours to 2 hours.....	1,565
Over 2 hours.....	177
Number of women for whom overtime work was permitted.....	172,427
Number of days for which overtime was permitted.....	40,022
Number of applications for permits for overtime work rejected.....	264
Total number of permitted hours of overtime work.....	2,529,155½

Besides the above there were also given permits to 2,447 women in 1,650 establishments to work 59,911½ hours overtime on Saturdays.

The industries having the largest number of establishments to which permits for overtime work on week days (except Saturdays) were given, and the number of workers for whom permits were given as well as the number of hours of overtime worked in the different industries are the following:

Industries.	Number of establishments.	Workers.	Hours of overtime worked.
Textiles.....	585	50,589	761,027½
Clothing.....	640	37,936	323,032½
Food.....	241	32,018	873,707½
Cleaning.....	223	23,817	209,667½
Paper.....	144	7,587	103,306½

The following permits for overtime work were given for Sunday and holiday work, according to article 105f of the Industrial Code:

Number of establishments in which Sunday work was allowed.....	1,479
Number of workers affected.....	104,267
Number of hours permitted.....	1,348,228½

The tables upon which the above data are based are found at the end of the yearly report of the Prussian state and industrial councilors for 1912. These tables give a résumé of the individual work of each government circuit. The body of the report consists in separate reports for each government circuit. The report is divided into the following sections:

1. The number of establishments and workers, young persons, children, etc.
2. The protection of workers against dangers, which includes a report of accidents as well as dangerous trades.
3. The economic and moral conditions of the working population.

Bavaria.

In the Kingdom of Bavaria in 1912 there were 11 districts, and the whole inspectorial service consisted of 42 officials. There were altogether 113,904 establishments with 767,446 workers. Of these there were 10,675 establishments with at least 10 persons regularly at work, and with a total number of 553,230 workers.

The total number of inspections was 24,925. Inspection was made of 21.2 per cent of all the existing establishments with 63.2 per cent of all workers employed. Of the establishments inspected 48.26 per cent were establishments with 10 workers or more, in which there were 74.4 per cent of all the workers employed in the State. There were 256 night inspections made and 532 Sunday and holiday

inspections. For each of the 35 working inspectors employed in 1912 there were made 712.1 inspections in 689.9 establishments with 13,869.7 workers. There were 735 accidents investigated; 2,722½ days were spent in traveling by inspectors; in 90 cases inspectors were required to appear in courts. The five women inspectors made 5,197 inspections and traveled 441 days.

The report of the chief inspector also shows that in 1911 there were made and investigated 892 applications for authorization of new establishments under articles 16, 24, and 25 of the Industrial Code; and in 1912 5,452 applications for license and construction of new establishments were submitted to the industrial councilors. The total number of workers in the State in 1912 was found to be 767,446, of whom 58,605 were male young persons, and 19,835 were female young persons. The chief inspector estimates that there are 14,000 male home workers and 26,000 female home workers in the State. Violations of provisions relating to female workers were discovered in 3,071 cases, of which 48.9 per cent were for violations of the provisions for registers, notices, etc.

The number of young persons working in industrial establishments was 78,440, or 10.2 per cent of the total number of workers. The industries in which the largest numbers of young persons were found are the clothing industry, with 12,304 persons; the metal industry, with 11,245 persons; and the food industry, with 9,433 persons.

According to the report, there was an increase since 1911 of 1,781 children working between 14 and 16 years of age, but there was a decrease of 248 children working under 14 years of age.

There were 6,125 violations found against the provisions for employment of young persons, or 529 less than in 1911; but again, most of the violations, or 74.2 per cent, were for violations of such provisions as those relating to work books, registers, certificates, and notices.

As to employment of children, the report says as follows:

The enforcement of the law in relation to child labor in industrial establishments is not as yet a satisfactory one. Although, according to the statistics of the school authorities, there are 6,000 to 7,000 children employed at labor, the number of new work certificates issued is remarkably small. Illegal employment of children is still very frequently found. In 50 cases a fine of 1 to 35 marks [\$0.24 to \$8.33] was imposed. It is hoped that a more strict supervision of home work will lead to improvement in the condition of children employed in home industry.¹

During the year 21,729 accidents were reported. Of these accidents there were 159, or 0.7 per cent, of fatal accidents; 890, or 4.1 per cent, of severe injuries; and 18,728, or 86.2 per cent, of slight injuries. The industries in which the largest number of accidents occurred

¹ Jahresberichte der Königlich Bayerischen Gewerbeaufsichtsbeamten, 1912, p. XXV.

are the building trades with 24.8 per cent, the machine industry with 21.7 per cent, the food industry with 11.5 per cent, the metal industry with 9.8 per cent, and the wood industry with 8.2 per cent of the total number of accidents.

As a result of the visits of the inspectors, 14,633 orders were issued, relating to the following:

Construction, etc.....	1, 651
Fire prevention, etc.....	800
Boilers, etc.....	303
Motors, machines, etc.....	653
Belts, shafts, flywheels, etc.....	2, 971
Safeguarding of machinery.....	3, 639
Elevators and hoistways.....	990
Stone quarries and excavations.....	1, 012
Protection of workers during construction.....	693
Personal equipment of workers.....	685
Others.....	1, 236

The report mentions also the imprisonment for one week of two workers who were, by their negligence, responsible for the death of a bricklayer. There were 5,760 orders made in relation to sanitary conditions, as follows:

Orders relating to location, construction, maintenance, and cleaning of workrooms.....	1, 382
Air space and ventilation.....	376
Heating and illumination.....	133
Removal of dust, refuse, gases, and fumes.....	533
Dressing, wash, and bathing rooms.....	724
Lunch rooms, restaurants, etc.....	394
Sleeping places.....	545
Toilets.....	544
All others.....	1, 129

There were 26 fines imposed of between 3 and 20 marks (\$0.71 and \$4.76) for violations of orders relating to sanitary conditions in factories.

The Bavarian report also gives a résumé of the activity of Dr. F. Koelsch, who is the industrial physician of the State. This is the fourth year of his service. This activity manifests itself (1) in consultation work, giving advice to the minister and to the industrial and other inspectors in matters relating to health; (2) in the organization of first aid for accidents in factories; (3) in the investigation of cases of industrial poisoning; (4) in the establishment and conduct of the group of industrial hygiene in the museum of safety; (5) in a large number of articles and important contributions to the press, part of which was used as educational matter for instruction of workers, etc.; for instance, 20,000 copies of an educational pamphlet on protection of the eyes were distributed; (6) a number of special hygienic investigations were undertaken in the laboratory and in the indus-

trial establishments, and a large number of analyses made of poisons, etc., from various establishments. Inspections were also made in 104 establishments. The industrial physician traveled $71\frac{1}{2}$ days during the year; he also attended a course of lectures on treatment of accidental injuries and industrial hygiene at the Institute of Industrial Hygiene. A study was also made of occupational diseases in dangerous trades.

Baden.

The sphere of activity of the industrial inspectors in Baden is somewhat wider than in other States. Stone quarries and excavations are included in the places which are to be investigated; also protection against accidents in prisons as well as protection of workers in establishments of the State railroads and the protection of assistants in commercial establishments, offices, and warehouses. Under the jurisdiction of inspectors are also included workers in restaurant and hotel kitchens and also the numerous moving-picture establishments.

The following table shows the inspection work of the industrial department of Baden in 1912:

Number of inspectors, including the central inspector and his assistant.....	18
Inspection of establishments with at least 10 workers and of those subject to inspection in accordance with article 120a of the Industrial Code:	
Number of establishments.....	16,642
Number of inspections made.....	10,193
Inspections per 100 establishments.....	61.2
Night inspections.....	14
Sunday and holiday inspections.....	81
Number of establishments inspected once.....	8,852
Number of establishments inspected twice.....	567
Number of establishments inspected more than twice.....	64
Workers found in establishments inspected.....	193,960
Establishments not inspected.....	7,159
Per cent of establishments not inspected.....	43
Workers in establishments not inspected.....	89,182
Per cent of workers in establishments not inspected.....	31.4
Number of inspections in the home industry, handicrafts, and the building industry:	
Home industry establishments.....	284
Handwork shops.....	164
New construction.....	293
Stores, offices, and warehouses.....	40
Establishments of the State railroad.....	33
Prisons.....	1
Moving-picture establishments.....	45
Sand and gravel pits.....	165
Other establishments.....	4
Total.....	1,029
Total inspections in all industries.....	11,122

The total number of days traveled by the inspectors was 1,531. The industrial inspectors made also 60 investigations on reports of accidents. Orders were issued for the prevention of influences injurious to health, as follows:

Illumination.....	11
Ventilation.....	31
Removal of dust.....	23
Removal of smoke, gases, and fumes.....	33
Cleaning of work places, etc.....	445
Heating.....	36
Removal of inappropriate work places, etc.....	13
Establishment and proper maintenance of toilets.....	196
Establishment, etc., of lunch and dressing rooms.....	96
Wash and bathing places.....	124
Overcrowded work places.....	4
Improvement of bakeries.....	17
Improvement of living, sleeping, and other conditions.....	209
Others.....	68
Total.....	1,306

There were 1,413 orders made for the prevention of accidents in various industrial establishments, and 1,520 orders for the general protection of workers. There were 138 written complaints received from workers, 60 of which were from the workers themselves and 78 from labor organizations or their representatives. Besides, 10 oral complaints were received from workers. Interviews were held by the inspectors with 234 employers and 16 workers and representatives of labor organizations. Of the 148 complaints from the working people 55 were well founded; 34 only partially so; 36 were found with no cause for action; and in 23 cases decision was still pending.

The inspectors also had 1,595 applications for building permits submitted to them. Investigations were made by the department upon the conditions of Italian and Polish workers, the *padrone* system as well as the wages paid to these workers.

Hesse.

The five districts into which the State of Hesse is divided have 5 industrial inspectors and 10 assistants, altogether 15 inspectors. The total number of inspections made in 1912 in Hesse, including those made in the mines and fisheries, were 12,246, of which there were 125 night inspections; Sunday and holiday inspections, 226; establishments inspected once, 5,835; those inspected twice, 1,781; and those inspected three times or more, 745. There were 46 accidents investigated.

Total number of establishments with 10 or more workers.....	6,892
Establishments with female workers over 16 years.....	1,775
Establishments with young persons working.....	2,968

Number of male adult workers.....	94, 140
Number of female workers between 16 and 21 years.....	10, 457
Number of female workers over 21 years.....	11, 771
Total number of female workers over 16 years.....	22, 228
Male children between 14 and 16 years.....	7, 932
Female children between 14 and 16 years.....	4, 949
Male children under 14 years.....	27
Female children under 14 years.....	13

Inspected establishments with 10 or more workers.

Number of inspected establishments.....	5, 276
Male adult workers.....	75, 381
Female adult workers.....	19, 955
Male children between 14 and 16 years.....	6, 397
Female children between 14 and 16 years.....	4, 405
Male children under 14 years.....	11
Female children under 14 years.....	10

Total number of workers in inspected establishments.... 106, 159

Besides, inspections were also made in certain industries for which special rules and regulations are made according to article 120e of the Industrial Code. There were 3,583 establishments with 7,679 workers in these industries, and 3,085 establishments with 6,510 workers were inspected; a total of 5,155 inspections being made.

Although violations of provisions relating to employment of females were found in 248 establishments, only 32 persons were fined. Besides, violations of the provisions relating to employment of young persons were found in 709 establishments and 39 persons were fined.

In the report is also found a table showing the number of own and other children working in industries, the table being based upon the reports of school authorities. According to a footnote in the report the number in this table is exaggerated, and the number of children illegally employed is much smaller. The table reads as follows:

Total number of public-school children.....	213, 312
Own children employed:	
From 6 to 10 years of age.....	446
From 10 to 12 years of age.....	501
Over 12 years of age.....	1, 242
Other children employed:	
From 6 to 10 years of age.....	104
From 10 to 12 years of age.....	195
Over 12 years of age.....	996
Total number of children employed.....	3, 484

The number of places in which children were found working is 350; the number of illegally employed children was equal to 0.52 per cent of the total number of children in schools; and the number of employed children was equal to 1.6 per cent of the total number of public-school children.

Saxony.

According to a census taken on May 1, 1912, there were in the Kingdom of Saxony 33,555 establishments with more than 10 workers, in which there were 806,408 employees. There were also subject to inspection according to article 120e of the Industrial Code smaller establishments with less than 10 workers numbering 13,731, with persons working therein amounting to 37,845. Of the smaller establishments mentioned there were 5,738 hotels, restaurants, and saloons, with 20,355 workers. There were also 5,610 bakeries and confectionaries, with 10,130 workers.

The total number of inspections made during the year was 30,119. Sixty-six per cent of all the establishments, with 85.2 per cent of all the workers were inspected.

Beside the work of the inspectors, the police authorities made inspections and imposed fines and penalties as follows:

	Inspections.	Fines, etc.
In establishments with at least 10 workers.....	25,324	593
In bakeries and confectionaries.....	9,590	191
In hotels, restaurants, and saloons.....	7,419	267

In the factories there were found 487,899 male workers over 16 years of age. The report also mentions 236 strikes and 25 lockouts.

In the census taken were found the following figures, which relate to factories:

Female workers over 16 years.....	248,663
Young persons.....	69,846
Young persons between 14 and 16 years.....	67,016
Children under 14 years.....	2,830

The industries in which the largest numbers of young persons were employed are the textile industry, in which there were 23,975 young persons, or 9.4 per cent of all persons employed in this industry in Saxony; the machine industry with 12,228 young persons, or 9 per cent; the metal industry with 7,168 young persons, or 10.7 per cent; and the clothing industry with 7,110 young persons, or 11.3 per cent of all employees of this industry in the State.

The number of accidents during the year was 22,899, the fatal accidents amounting to 124. In 1,163 cases the industrial inspectors made investigations. The inspectors made orders numbering 13,830 for the prevention of accidents. The number of orders for the removal of influences injurious to health was 4,608. The number of violations found against the employment of women was 1,598. The number of violations against child labor was 2,917, of which 1,535 were against provisions relating to keeping of lists and registers, posting of notices, etc. There were found 1,905 violations against the child-labor law of March 30, 1903, and 78 fines were imposed.

The number of permits given for overtime work on week days, with the exception of Saturdays, was 1,792, and the number of hours of overtime work, 1,761,215.

METHODS OF SUPERVISION AND INSPECTION.

There is no central supervision in Germany by the Imperial Government over the administration of labor laws, because this administration is in the province of each separate State. Within each State the King or head of the State has the appointive power of State councilors, and the Minister of Interior or of Commerce and Industry has the jurisdiction over the factory inspection department in the State.

The organization of each factory department differs according to each State, and therefore the methods of supervision also differ. Practically in all the States the Ministry of Commerce and Industry or of the Interior has the appointive power of all the industrial inspectors and assessors as well as the sole supervision over the probationary inspectors. To the ministry also are referred important matters of policy as well as appeals from decisions of the lower institutions as to the authorization of certain specially regulated trades. For this purpose there is attached to the ministry an industrial councilor or privy councilor who serves in an advisory capacity and to whom matters of importance connected with the factory department are referred.

The minister also may issue from time to time orders explaining, amplifying, and interpreting sections of the Industrial Code, or may determine upon disputed points which come up in the work of inspection.

In Prussia factory inspection is practically divided into 34 (37 in 1913) separate independent circuits between which there is hardly any official connection apart from annual conferences which are held by the circuit industrial councilors. Within each circuit the supreme supervision over the factory department is in the hands of the State president (*Regierungs president*), or the chief bureaucratic head of the circuit may serve. Sometimes, as is the case in Berlin, this head of the circuit is the police president.

The offices of the chief inspector of the circuit are in Government buildings. The clerks doing the work for the industrial inspection department in each circuit in the Government offices do not belong to the industrial inspection department, but are a part of the bureaucratic machinery of the State government.

The chief inspector of the circuit attends the meetings of the local government board, makes reports upon the work of his circuit, acts as expert in questions relating to industrial matters, and generally represents the industrial inspection department in the local government. The relations between the industrial State councilor having charge of a circuit and his various district inspectors are not close.

He receives from them annual reports as to their activities in order to be able to make out his annual reports to the minister. As a rule he visits each district once a year to get a general idea of the conduct of the district inspection as well as of the industrial conditions of the district.

Each district industrial inspector has full charge of his own district, has nothing to do with the inspectors of the adjoining districts, and is practically independent as to his work and methods of inspection in his own district. His office is located in his district, and very often he lives in rooms adjoining his office; he also engages his own clerks and establishes his own system of keeping records, although he is required to follow the general forms employed by the department of industrial inspection. There is consequently a great difference in the way the records are kept in each office. In one of the offices visited in Berlin was found an admirable system of card cataloguing, which is practically an innovation, all the other district inspectors keeping their records in the form of the so-called "akten," which are written or typewritten records rather bulky and difficult to keep track of. In this office every establishment had its own card, the different kinds of establishments being denoted by the different colors of the cards—all accidents in establishments being denoted with red markers upon each card of the establishment. The card system was brought up to such a perfection that it was possible at a glance to know exactly the condition of the districts, the number of accidents, the character of the violations, and the work of each assistant inspector.

In the office of district inspectors where no card catalogue system exists the register of each establishment is embraced in the akten, of which there is one to each establishment. In these akten are included the whole history of the establishment, all the correspondence between the various officials in relation to this establishment, the correspondence with the employers, and all the reports of violations, etc., relating to the establishment, so that each akt presents a complete record and historical review of the industrial establishment from the beginning of factory inspection to the present date. In some of the offices a large part of the office is occupied by shelves upon which the many akten are heaped.

The district office consists usually of two rooms, one of which serves as an office for the clerk and for the assistant inspectors, while the other is for the use of the district inspector. Here are held the interviews with persons having business with the factory department.

The district offices must tabulate the results of their activity in six specially prescribed forms, each of which shows the following data separately, by industries and by inspection districts:

Form I gives under the title "Inspection of Industrial Establishments and Accident Investigations" (a) the number of inspections—total, night, and Sunday and holiday; (b) the number of establishments inspected—once, twice, and three or more times; and (c) the number of accident investigations.

Form II shows the number of workers in establishments with at least 10 workers and in establishments subject to the same legal provisions as these, and makes a comparison between the number of establishments subject to inspection and the number of establishments inspected. Here record is kept of (a) the number of establishments (total, those employing female workers over 16 years of age, and those employing juvenile workers); (b) the number of adult male workers; (c) the number of adult female workers (16 to 21 years of age, over 21 years, and total); (d) the number of juvenile workers 14 to 16 years of age (male, female, and total); (e) the number of children under 14 years of age (male, female, and total); and (f) the number of all workers employed. The same data are given for establishments inspected.

Form III gives a record of the same data as Form II for establishments for which the Federal Council, in pursuance of article 120e of the Industrial Code, has issued special regulations.

Form IV is a record of the violations found against the provisions relating to employment of female workers.

Form V gives a record of the violations of the law against the employment of young children.

Form VI shows the number of permits issued for overtime work of adult females.

Besides these records there are a number of other forms which are kept in each office, such as a day book of the industrial inspection correspondence, and an industrial register (*Kataster*), which gives a detailed record of the character of each establishment, the number of its workers, and the number of violations found therein. There are other forms prescribed for every specially regulated trade and industry, for investigation of accidents, for boiler inspection, and various other matters connected with the department.

It is apparent that the clerical work of each district is enormous and takes considerable time of an inspector. The district inspector keeps up a voluminous correspondence with the district government, the district police, and the district physicians in the district government with the aid of the clerks and inspectors. He has much to do as expert, as adviser, and as representative of the industrial inspection department. The relations of the district inspectors with the police must be very close, and also must extend to the local government. This is done in great measure through correspondence. The police authorities are given certain forms upon which they make

notes of the results of their semiannual reinspections of each establishment, which inspection relates almost entirely to the general character of the establishment and to the number of workers of various ages in the establishment.

The district inspector also refers to the police, by correspondence, the character of the violations found by himself or by his assistants which need either reinspection or which require court proceedings for prosecutions and enforcement. The district physicians participate in inspection and report upon the applications for authorization of specially regulated industries. Sometimes the inspections are made independently of each other, and at times the physicians and inspectors may come together and make inspections simultaneously.

The district inspector assigns his assistants, the industrial assessors, as well as the industrial referendars to the various establishments which need inspection, irrespective of territorial subdivisions. As a rule, each assistant is assigned to such work as he is best fitted to do. The industrial assessors are given the more important work of investigation of accidents, of inspection of establishments with more than 20 persons, and wherever machinery is to be inspected or ventilating plants are to be investigated, etc. The district inspector himself usually takes charge of the inspections on applications for authorization of new establishments. These inspections are considered of the greatest importance by the inspectors because they think that it is of paramount importance to see that new establishments are properly constructed so that in the future comparatively little inspection work will be necessary.

The inspectors stated that their hope for the enforcement of the law in relation to prevention of accidents and dangers to life and health is centered upon the new works which have been and which are inspected when applications for authorization are made. They rightly think that if new establishments are properly constructed and equipped there will be very little work in the future for the inspectors to do with these establishments, and they may have more time to devote to older establishments.

The industrial "referendars," or probationary inspectors, do not, as a rule, make independent inspections, but accompany the other inspectors in their visits.

The daily work of the inspectors begins in the morning, when practically all assistants meet in the office of the district, are assigned to various duties and then go to the establishment to which they are assigned. It is difficult to determine the exact number of hours which an inspector works. He is supposed to be in his district the major part of the day, some inspectors remaining till 1 or 2 o'clock in the afternoon, and then do their clerical work; while others may

be in their districts longer and do their clerical work at home. Night inspections are made at certain intervals, and the time spent on these inspections is counted in the daily work of the inspectors.

European inspectors do not carry badges of office, but are provided with a "Legitimationskarte," which is an identification card signed by the president of the district. During frequent visits with the inspectors it was found that there was hardly a case where the inspector was required to show the identification card, his plain visiting card being sufficient to gain admission in practically every establishment.

As a rule inspectors first go to the office of the establishment, present their card, and request admission. This was specially the case when they were accompanied by a foreigner for whom they had to request admittance and the courtesy of inspection. The inspectors stated that they do not always have to present themselves at the office, but may go straight into the establishment by simply giving their card to the porter. Cases of obstructing the entrance of an inspector are very rare. One such case is mentioned by Dr. Hartmann in his report of 1912. In this case the employer not only refused admittance to the industrial inspector but also showed him the door. In court the employer tried to justify himself by the fact that the inspector should have first reported himself in the office instead of going right into the establishment. His contention, however, was not upheld, and he was fined 200 marks (\$47.60).¹

The first work of the inspector on entering an establishment is to look at the notices and placards which are legally required to be exposed at the entrance of each establishment. As we have seen in the previous section of this chapter, absence of these notices constituted a greater part of the violations.

The next work of the inspector is the examination of the so-called "Arbeitsordnung," or shop rules, which must be posted in each establishment and contain detailed regulations for the workmen under various headings.

SECTION I.—This section gives in detail the methods of engaging laborers, the time for which they are engaged, notice which the workers as well as the employers must give each other in case of termination of contract, etc.

SECTION II.—In this section are found the hours of labor, forenoon and afternoon, for adult workers, for females over 16, and for young persons under 16, as well as the hours of beginning and closing work on Saturdays and on the day before a holiday.

Section III gives the provisions for the weekly, daily, and hourly wages which are contracted for at the time of engagement of the workers, as well as the prices of piecework. It also states in what part

¹ Jahresberichte der Königlich Preussischen Regierung und Gewerbeberäthe, 1912, p. 103.

of the establishment the wages are to be received on Saturdays, that the contributions for sickness and other insurance are to be deducted, and the provisions for loss of wages during workers' absence.

Section IV states the permitted entrances and exits for the workers and prohibits them from entering the boiler and machine houses.

Section V gives in detail the fines which may be imposed for various derelictions of duty.

Other sections give the various provisions about smoking, behavior of workers, notices of sickness, cleanliness and order while at work, etc. There are also important sections regarding the use by workers of machinery and equipment which may be dangerous to life and limb.

After the examination of the "Arbeitsordnung" the inspector visits all parts of an establishment, notes the presence of young persons and children, and verifies their number with the register in the office. During visits with inspectors a number of apparently very young children were found at work. In only one case, however, was it found that a child was under the legal age when its certificate was compared with the register in the office.

The most important part of the work of the inspector is, of course, in the inspection of the machinery and of the general sanitary conditions of the establishment. As most of the inspectors are expert engineers, this part of the inspection is usually very efficiently attended to. Each machine and each part of the machinery, as well as all transmission apparatus is closely inspected and a detailed note made of all such places as are deemed to be insufficiently guarded. As a rule, the owner of the establishment or the superintendent recognizes the expert character of the inspector and follows his advice in matters of safeguarding machinery. Each inspector is not only a technically trained man, but has the opportunity to see the same kind of machinery in various establishments of the same character, and therefore is able to learn all the devices for safeguarding machinery. His advice, therefore, is of great value to the individual owner.

There is, of course, no standard which is accepted throughout the State for the safeguarding of various kinds of machinery. Some inspectors are regarded as experts in special lines of machinery, and they have endeavored as a matter of duty and pride to have all machinery in their districts specially safeguarded. In Gladbach in the district of Düsseldorf, the writer had the privilege of inspecting a cotton-spinning factory with the industrial inspector, who has been in this district for a number of years and who made a specialty of textile machinery. This inspector has written a number of articles upon safeguards of textile machinery, and is practically the advisory technical expert of all the employers in the district. He stated that there is hardly a new textile factory established until the owners and architects as well as the superintendents of such establishments

have secured his advice as to the location of machinery and the proper installation of safeguards.

The German factory inspectors pay the utmost attention to the safeguarding of machinery and take great pride in showing what is being done in this respect in their districts. Reference has already been made to the fact that the inspectors often visit museums of safety and attend special lectures at the Institute of Industrial Hygiene at Frankfort-on-the-Main in order to further study the subjects under their supervision. This constant study and the special attention paid to safeguarding of machinery seem to have been fully recognized by the employers, who greatly rely upon the opinion of the inspectors, and as a rule follow their direction without any compulsion.

The inspectors are guided considerably by the standards which are established by the accident insurance associations. These standards are officially binding for the inspectors as well as for the owners of establishments, and serve as a guide to the inspectors.

It is only in cases of detection of violation of laws relating to employment of children or of women that the inspectors immediately refer their complaints to the police. When they find any violations relative to the safeguarding of machinery or to other conditions, they orally enjoin the owner to remove the violation and make such improvements as are necessary. The inspectors stated, however, that they do not, as a rule, give detailed instructions as to the safeguarding of machinery for fear that in case these devices are not approved, the employers should have cause for action against the inspectors.

In the inspection of sanitary conditions of establishments the inspectors have a great deal of discretion, as there is practically no legal standard of light, air, air space, or of the contents of dust, gases, fumes, etc. No special methods of examination of light, air, or dust are used by the inspectors. No tests are made of the character of the air or light, nor of the quantity or kind of dust. When these tests are made, they are made independently of the inspectors by experts in industrial hygiene, who are usually professors or instructors in technical schools and universities.

Each inspector may have his own standard of light, air, dust, gas, fumes, etc. As a result of this absence of standards, there is no uniformity of action among inspectors. This is especially the case in the inspection of older establishments. In these establishments the subjects of light, ventilation, dust removal, and other sanitary conditions are decided upon by each inspector according to general principles.

In the matter of light there is very little difficulty, inasmuch as most of the German factories are well situated and there are few tall buildings in the large cities. Many of the establishments are not

higher than one story and have skylights. Even in Berlin, where there is a large overcrowded industrial section, and where a number of loft buildings are used for factories, conditions as to light are very good, and factories have light from two or more sides.

The inspectors take great care of ventilation in factories, especially in the presence of dust, gases, and fumes. The writer failed to find one establishment in which there was not a good system of dust removal, wherever there was any considerable amount of dust produced during the process of work. At present there are a number of very large firms in Germany which make a specialty of installation of dust removal apparatus, and methods of local ventilation and dust removal seem to have progressed in the country.

In Berlin, as well as in Solingen, were found a large number of tenements constructed for separate tenants with a central ventilating plant and with dust removing tubes to each apartment. In Berlin such tenements are used for manufacturing purposes by home-working woodworkers and turners and in Solingen by master cutlers.

The inspectors stated that they allow no emery wheel or any grinding or other dust-producing machine to remain without being provided with a hood and local suction ventilating apparatus. In places where gases and fumes are evolved, and especially in all metal-plating establishments, inspectors claim to have succeeded in inducing the owners to carry away the fumes by special ventilating apparatus.

While there are no standards which are uniform in all parts of the country, and are adopted by all inspectors in their work of inducing owners to put in proper provisions for light, ventilation, dust, gases, and fumes, etc., the general principles have been so well established by the various industrial hygiene exhibitions and safety museums, and so widely reported and published in technical magazines, that all inspectors have a general knowledge of the subject and have endeavored to introduce all possible improvements in their respective districts.

In passing upon the applications for authorization of new establishments under article 16, or inspection and regulation of industries, inspectors have been required to establish more definite standards, which are, however, not general to the industry, but in some respects established for each separate plant. The following are the standards which are prescribed for the inspectors, to guide them in passing upon applications for authorization.

VENTILATION.—Every work place must be properly ventilated. If windows do not open their entire extent, the upper third of the windows must be so constructed as to easily open and close. Bad air should be drawn out through chimneys with proper cowls or by mechanical ventilators. Gases, fumes, and dust must be immediately removed at the point of production by mechanical suction apparatus.

HEATING.—Workrooms must be heated during cold weather. The heating apparatus must be so constructed as to prevent direct heat rays upon the workers, must be free from dust, and provided with means to regulate the humidity of the air of the

room. If mechanical ventilation is present, a combination of heating and ventilating apparatus is recommended.

LIGHT.—All workrooms must have direct daylight or artificial illumination to give sufficient light in all parts of the workroom, and be free from glare. Wash rooms, bathrooms, lunch rooms, toilet rooms, stairways, etc., must be properly lighted.

DRAINAGE.—Floors of all workrooms upon which much water is spilled should be of nonabsorbent material and properly graded and drained, and should be covered with proper board slats.

DRINKING WATER.—There must be provided abundant, pure, and fresh drinking water on every floor of the building.

WASH ROOMS.—Washing and bathing facilities should be provided so that there be at least one for every five persons working in a shop. Wash rooms should be light and separated for each sex, provided with running water, and properly drained.

DRESSING ROOMS.—Lockers must be provided, preferably for each individual worker. Separate places for washing and dressing should also be provided for each sex. These should be near to the workshop, and must be properly lighted and heated in winter. There should be a separate wash place for every five persons; also tub or shower baths.

LUNCH ROOMS.—Suitable places should be provided for those workers who remain in the factory to eat their lunch. Such places should be well lighted and properly heated and have a sufficient number of tables and benches. These lunch rooms may be located in the dressing rooms.

TOILETS.—Well-lighted, heated, and ventilated toilet rooms must be provided, if possible, on every floor. These should be separated from the work places by thick walls, with a well-ventilated vestibule. Doors must be self-closing. One seat should be provided for each 25 male workers and one for each 15 female workers, each compartment to be properly lighted and provided with doors which may be locked or bolted. Each compartment should be designated whether for the use of men or women, and the bowls should be well flushed. Besides the toilets, a sufficient number of urinals should be provided, properly flushed and maintained in a clean condition.

Some of the paragraphs are provided with blank spaces which are filled in by the district inspector, and which constitute the standards for each individual establishment. As the owner of the establishment has the right of appeal, the final standards established for his plant are well considered by the employer, by his representative, by the district inspector, by the district police, and district physicians, as well as by the chief inspector of the circuits.

The inspectors do not carry any special inspection blanks or cards with them in their work of inspection, but usually make notes only of special violations which they find. In all cases of violations of the provisions of article 120 of the Industrial Code, the inspectors give oral advice and instruction to the employer or responsible head of the establishment. They make a note of these oral instructions and on their return to their office they usually send the following letter to the owner of the establishment, on official blanks of the industrial inspection department:

During the official inspection on ——— of your establishment, at ———, I found the following items of which I wish to remind you:

(Here follow the points of which the inspector wishes to remind the owner.)

I respectfully request you to inform me in relation to this matter not later than

Another form which is used by the inspector is the following:

Mr. _____,

Date, _____.

During inspection made on _____, the following violations against the provisions of the Industrial Code were found, which violations must be remedied not later than _____, and of which I request you to inform me.

These are practically the only written communications which the inspector has with the employer. Reinspection is made either by himself or is referred to the local police authorities, who inform the inspector whether the violation has been remedied. An inspection is made only in case of doubt as to the proper remedying of the violation. When, upon his own inspection, or upon the report of the police authorities, the district inspector finds that his wishes were not complied with, he then refers this matter to the police authorities for their action. From this point on the inspector has nothing more to do with the subject until called as witness in court to testify to the existence of the conditions or of their dangers to life and health.

FRANCE.

HISTORICAL REVIEW.¹

The Revolution of 1789 abolished all privileges, among others the monopoly of the guilds, which had been partly suppressed by Turgot in 1776. In 1796 an attempt was made to regulate certain trades, including protective measures, such as limitation of the hours of labor before and after midday, etc. A more serious attempt was made by the law of 22d Germinal XI (April, 1803), prohibiting work in manufacturing establishments before 3 a. m., and providing each worker with a special "work book" (*livret personnel*).

By a police ordinance of September 26, 1806, further regulations prescribed that masons, bricklayers, plumbers, carpenters, etc., should not commence work from April 1 to September 30 before 6 a. m., and should stop work at 7 p. m. From October 1 to March 31 the hours of labor were to be from 7 a. m. to dusk.

Next came the law of January 3, 1813, which regulated the labor of miners and prohibited children under 10 years from working in mines, and the law of November 18, 1814, making certain provisions for Sunday and holiday rest.

During the first quarter of the nineteenth century the development of industry due to the invention of machinery and the use of steam as motor power was very rapid, and led to certain abuses, not the least of which was the employment of a large number of very young children in the cotton mills. The agitation on the subject of child labor in England and the enactment of protective legislative measures must have had some influence on French opinion, although no special attempts were made to enact any laws for the protection of children.

In 1827 the Société Industrielle de Mulhouse was organized and began its fruitful agitation for the limitation of the abuses of the factory system, and for the protection of women and children, an agitation which continued for a great many years, and to which no doubt much of the legislative work in France is partly due. During that year Mr. J. J. Bourcart made a report to the society on the necessity for fixing the age limit of admission and for reducing the hours of labor of workers in cotton mills. He demanded some regulation of child labor in France on the plan adopted in England and also advocated measures for improving the health of the workers by attending to the safety and sanitation of the mills.²

¹ The historical data are based upon Roger Fighiera's *La Protection Légale des Travailleurs en France* Commentaire du Livre II du Code du Travail et de la Prévoyance Sociale. Paris, 1913.

² *Idem*, p. 21.

The Société Industrielle de Mulhouse was particularly qualified to propose protective measures for workers, as it was situated in the center of the factory district, where children of very young age were employed excessively long hours. The society petitioned for a minimum age of admission to industry and for enactment of laws protecting child workers.

At about the same time Dr. J. Gerspach, a physician at Thann, wrote a thesis on the protection of workers. This thesis was entitled "Considerations on the influences of spinning and weaving of cotton on the health of the workers" (*Considérations sur l'influence des filatures de coton et des tissages sur la santé des ouvriers*). He clearly indicated the injurious influences of vitiated air in the mills on the health of the workers, the effect of the work on the physique and morals of the population, and formulated regulations limiting the age of admission of children to work, and improving general industrial conditions in the mills.¹

During the reign of Louis Philippe, Guizot, then Minister of Public Instruction, interested himself very much in school children and in popular education, and asked for reports and investigations on the subject. In 1833 the Academy of Strassburg referred to the Société Industrielle de Mulhouse certain propositions relating to child labor. The following questions were proposed:²

At what age should children of both sexes be admitted to work in cotton mills and other factories?

What should be the hours of labor?

What should be the days of rest?

Should the manufacturers establish free schools for the young workers?

For what periods and how long should school instruction be?

Should not local physicians be required to report upon the sanitation of the working places and the health of young employees?

What authority should be intrusted with the enactment of such laws?

What should be the penalties for violations of these laws?

Who should bear the penalties—the parents or the manufacturers?

In 1835 the Academy of Sciences instructed certain of its members to make a thorough statistical investigation on the subject and to find out the exact physical and moral state of the workers. Dr. Villermé made the report, which was published in 1839–40 under the title of "Table of the physical and moral state of the workers employed in linen and silk manufacture." The report presented the subject in a very thorough and graphic manner, and showed the shocking abuses of child labor in industry, the harmful consequences of such labor on the physical and moral condition of the children of the entire population, the very small wages which were paid for labor, the

¹ Idem, p. 23.

² Idem, pp. 24–27.

excessive exploitation of infants and children in the factories, and demanded the powers of the State to aid in the protection of children and in the removal of the abuses which had grown to such an extent. The report of Villermé was supported by a number of petitions, especially from the Société Industrielle de Mulhouse, which at last compelled the Government to begin work on protective measures for workers in mills and factories. The Government's proposal not only contemplated the prohibition of employment of children before a certain age in factories and workshops, limiting the application of the law to textiles and establishments where motors or continuous fires were used, but also proposed the limitation of work during the night and provided penalties for violations of the law ranging from 16 to 100 francs (\$3.09 to \$19.30). The enforcement of the law was to be by the aid of the police prefects and subprefects, the mayors, and public prosecutors, as well as by the police commissioners of the local districts where the factory was located.

During the discussions of this project special commissions were appointed, and some of these were greatly in favor of the institution in France of an inspectorial service, similar to that in England.¹ The propositions were changed and amended and at last enacted into law on March 22, 1841.

The law of 1841 applied only to industrial establishments with motive power, machinery, or continuous fire, employing at least 20 workers. It limited the age of children admitted to work to 8 years, the hours of labor of children between 8 and 12 years to 8 hours, children from 12 to 16 years to 12 hours, provided some schooling for children under 12 years, and also for midday pauses.

The enforcement of the law of 1841 was given to voluntary commissions in each district, who were to appoint the inspectors of weights and measures for the work of inspection in the factories, and for the administration of the first labor law. Public functionaries and ex-magistrates were to be appointed as commission members in each arrondissement, and police prefects were charged with the general administration of the law. According to a circular of the minister, it appeared that in the 75 departments the number of establishments under the law was more than 5,000, and the children under 16 years of age working therein reached the number of 70,000.²

Neither the scope nor the application of the law seemed satisfactory to those specially interested in the protection of children, as is evidenced by a petition which the Société Industrielle de Mulhouse addressed to the deputies in 1843. In this petition they stated that inspectors should not be named by voluntary commissions, but should be specially chosen for the work of inspection in manufactures; that

¹ Idem, p. 41.

² Idem, p. 48.

it was not necessary to have many inspectors, and referred to the experience of England where there were only four inspectors who had to inspect at least once a year every one of the factories under their jurisdiction. If another system were adopted they said there would be no enforcement of the law.¹

It was not intended to entirely suppress the voluntary inspectors, but to appoint special inspectors to assist them. In the discussion of this matter before the chambers it was pointed out that factory inspection was organized in 253 arrondissements and that 1,643 inspectors were at work; although it was recognized that where peaceful measures were inadequate to enforce the law, certain repressive measures ought to be adopted to enforce the law more strictly.

Notwithstanding the large number of voluntary commissions and the number of inspectors who were supposed to enforce the law, it was universally admitted that the protective measures enacted by the law of 1841 were not enforced, especially the provisions which related to the 8-hour limitation of work of children between 8 and 12 years. In the discussions on the subject of labor protection before the Government, the opinion was expressed that it was necessary to organize a special force of inspectors with paid chief inspectors, even if the local inspection was given into the hands of voluntary committees. A number of projects for the improvement of the law and for its amendment were presented to the legislature, but no new law was enacted until February 21, 1848. This law, before its final enactment, was invalidated by the revolution of February 24, 1848, and the proclamation of the Republic.

The first act of the revolutionary government was to enact "The right of labor" law. On March 2, 1848, a law was enacted which diminished the hours of labor by one hour, limiting the hours of labor of all adults in Paris to 10 hours, and in the provinces to 11 hours. In the decree of March 10 the Minister of Agriculture and Commerce stated that the enforcement of the law of the Republic as to the limitation of hours of labor was given over to the safeguarding of all citizens. A Government commission of workers presided over by Louis Blanc, a member of the provisional Government, was at the same time appointed for the administration of the act to limit the hours of labor. By the decree of April 4, 1848, the violation of the 10-hour law in Paris was followed by a fine of 50 to 100 francs (\$9.65 to \$19.30). In case of repetition of the offense, the fine was increased from 100 to 200 francs (\$19.30 to \$38.60), and in case of further repetition with a maximum imprisonment of six months. This, however, related only to Paris. The administration of the law in the provinces was left to the municipalities.

¹Idem, p. 49.

The law of March 2, 1848, was, after violent discussions, finally amended by the law of September 9, 1848, which limited the hours of labor in factories and workshops to 12 hours a day. Violators of the law were punished with fines of from 5 to 100 francs (96.5 cents to \$19.30), which were increased up to 1,000 francs (\$193). The limitation of the hours of labor was made the same for the whole country. The enforcement of the law was left to the police prefects of the districts.

Very little progress in labor legislation was made from 1848 to 1874. During this period many schemes for new laws were brought forth, many discussions were held in the legislative chambers, and a number of petitions were received from industrial societies, etc.

The law of 1848 was somewhat modified by a decree of May 17, 1851, and a further decree of January 31, 1866. Some provisions for the regulation of the work of apprentices were made by the law of March 4, 1851. The laws were practically dead letters, and very little was done during the latter part of the First Republic or during the Second Empire.

All this time the Société Industrielle de Mulhouse, the Academy of Sciences, and other institutions were continually pushing their investigations and petitioning for a better enforcement of the law and for new protective measures. The Government of Napoleon III made some feeble propositions without seriously attempting to enact them. A great impetus for the enactment of labor legislation was given in 1867 by the Universal Exposition held in Paris and by the foundation of the Society for the Protection of Apprentices and Children in Factories that same year, and by the demands of a delegation of workers to the exposition.

The most important reform demanded was a better enforcement of the already existing laws by the organization of an inspectorial service. In 1856 one Department, that of Tarn, created the position of inspector of labor for children in factories.¹ In 1865 the Department of Seine followed its example by appointing two special inspectors attached to the police prefecture. In 1868, by a Government decree, the engineers of mines were charged with exercising the functions of factory inspectors in the districts under their charge. This attempt, fostered by M. Freycinet, was not very successful. None of the numerous projects for the better protection of labor or for reform of the administration of already existing laws were destined to be enacted during the Empire; and the war of 1871 soon put a stop to all these plans until the establishment of the Third Republic.

In 1872 a commission was appointed by the Chamber of Deputies to make an investigation on the condition of the laboring classes in

¹ *Ibid.*, p. 100.

France. The commission, after a thorough study of the subject, recommended the following modifications of the existing legislation:¹

1. The extension of legal protection of workers to all industrial establishments without limitations.
2. The inclusion in the law of women employed in industry, according them the same protection as children.
3. The amelioration of the condition of children and the improvement of the conditions of labor.
4. The organization of a special service of inspection to enforce the laws.

The project of the Government, based upon the report of the commission, was at last enacted, although greatly amended, as the law of May 19, 1874. This law not only extended the protective measures for child workers and instituted the first protection for female labor, but also made the first provisions for a special inspectorial service for the administration of the law. The law of 1874 related to mines and industries. It limited the age of child workers to 12 years—in exceptional cases to 10 years—the hours of labor of children under 12 years to 6 hours; of children between 12 and 16 years to 12 hours. It provided for work pauses; for the prohibition of night work for male children under 16 and females under 21 years; for Sunday and holiday rest; also for school certificates for children and for 6 hours' school instruction for children under 13 years. It also made some provision for sanitary conditions in the workshops.

The provisions for administration of the law were as follows:

1. The appointment of a Commission Supérieur du Travail.
2. The appointment of 15 special inspectors to enforce the law.

The president of the commission was M. Dumas, a member of the institute. Among the other members were M. Ambroise Joubert, the author of the law of May 19, 1874, and M. Tallon, who was in charge of the bill in the national assembly. The commission was given power to make exemptions allowing children under 16 years to work at night; and from the first 26 industries which demanded these exemptions, the commission eliminated 22, and granted exemptions to only 4—metallurgical works, glass works, sugar making, and paper making.² The 15 inspectors who were appointed according to the law of May 19, 1874, began their work on June 1, 1875.

The work of the inspectors in the enforcement of the law was reported and freely criticized in the report of the Commission Supérieur du Travail, which began its work in 1876. The 15 inspectors, called division inspectors, were supposed to be assisted by local commissions and the inspectors of the various departments; but according to the second report of the commission, neither the work of

¹ *Idem*, p. 126.

² *Idem*, pp. 135, 136.

the local commissions nor the work of the few departmental inspectors then existing was satisfactory at any time. According to the commission there were only 100 official reports (*protocoles*) of violations made in the 18 months of the existence of the new system.¹

It soon became evident that the 15 inspectors could not by themselves enforce the law, and that a greater increase in their force was necessary. Some departments were earnestly endeavoring to assist the inspectors by aid of the local commissions. Thus, for instance, in the Department of the Seine, 38 new local commissions were appointed in 1879, but it does not appear that they were of much assistance.

By the law of February 16, 1883, the inspectors were given the jurisdiction not only of the law of May 19, 1874, but also of the law of September 9, 1848; and the Government was given the right to increase their number.

By various decrees the protective labor laws were extended: By a decree of 1882 the work of children in certain special factories was prohibited; a number of special laws were enacted designating establishments in which children and women were not allowed to work. By the law of July 12, 1880, the provisions for Sunday rest were extended.

The period between 1880 and 1890 was rich in investigations of labor conditions, in projects for new protective laws. On November 2, 1892, a new law for the regulation of labor of children and women in industry was enacted; on June 12, 1893, a law for the hygiene and security of workers was passed; in 1891 the Conseil Supérieur du Travail was appointed. It consisted of members of the National Assembly, workers, employers, members of syndicates, and labor organizations, etc. This commission was intrusted with the examination of proposed modifications for labor laws and with the uniform administration of these laws.

In 1906 a special ministry of labor and social welfare was created, and in 1910 was promulgated the first book of the new Labor Code which when completed will codify the many laws for the protection of labor.

The inspectorial service, which until 1892 was very faulty, was reorganized by the law of 1892 in its present form, and with a considerable body of inspectors, numbering 106 in all.

SCOPE OF THE LABOR CODE.

The growth and development of legislation for the protection of industrial workers has been described in the previous section, as well

¹ Idem, p. 139.

as the laws which, beginning with the end of the eighteenth century, have from time to time been enacted by the governments in France for the purpose of regulating industry and protecting the workers.

The whole mass of labor laws is being codified into seven books, the second book having been promulgated on November 26, 1912. The labor laws are annually published under the title of Laws, Decrees and Orders Concerning the Regulation of Labor, and the Nomenclature of Dangerous, Unhealthy or Obnoxious Establishments (*Lois, Décrets, Arrêtés concernant La Réglementation du Travail et Nomenclature des Établissements Dangereux, Insalubres ou Incommodes*).

The first book of the code deals with the laws on workers' contracts, embracing apprenticeship, nature of contract, regulation of wages and payment thereof, regulation of wages of married women, regulation of the hiring of workers and the penalties for infractions of the regulations.

The part of the code which is the most important is contained in Book II, entitled "The regulation of labor." This book is divided into a number of parts, each one dealing with a special regulation of certain conditions of labor.

Part 1 deals with conditions of work, age of admission, duration of labor, regulation of underground work, work of women and children, night work, night work of women and children, Sunday and holiday rest, and special regulation of work on merchant vessels, in itinerant trades, and employment of foreigners.

Part 2 deals with the hygiene and safety of workers, chapter 1 giving the general regulations; chapter 2, the special regulations as to women and children; chapter 3, the special regulations as to mines, miners, etc.; chapter 4 regulates the use of white-lead in painting trades; and chapter 5 the safety and hygiene of labor on merchant vessels.

Part 3 deals with the inspection of labor, giving in detail the regulations as to notices, registers, and books; the organization of the inspectorial department and general and departmental commissions, including also the inspection of mines and quarries, etc.

Part 4 deals with penalties for infractions of the laws.

To this general code is added a large number of orders, decrees, and regulations issued from time to time. These (in 1913) occupy 122 pages of the above-mentioned publication in comparison with the 48 pages taken up by the labor code proper.

This addition to the code consists of the following sections:

1. Rules and regulations as to labor of women and children.
2. Hours of labor.
3. Sunday rest.

4. Hygiene and safety of labor. This section is divided into the following:

- (a) International conventions.
- (b) General regulations.
- (c) Special regulations.

5. Regulations on the inspectorial service.

There is also a section in the above publication reproducing the various laws and decrees relating to industrial accidents. The last 18 pages are filled with an alphabetical list of dangerous, unhealthy, and obnoxious establishments, and contain several hundred industrial processes, each with its class designation, the nuisances which they are liable to produce, and the dates on which they were classified.

LAWS AS TO PROTECTED PERSONS.

Without going into details in regard to the labor laws it will be sufficient for the purposes of this report to note the following:

1. According to the French law the age of admission of children to industry is fixed at 13 years, but children between 12 and 13 may be employed if they have a certificate of primary studies and a medical certificate of their physical fitness to do the work. This examination is made by special physicians who are charged with the supervision and certification of age, or by medical inspectors of schools or other physicians in the public service, designated by the police prefect. Inspectors of labor, however, are given the right to demand a medical examination of all children under 16 years.

2. The hours of labor in factories and workshops are limited to 12 hours per day. This relates to adult males as well as to women and children. There are, however, certain trades in which the hours of labor are limited to 10 per day. All children under 18 years and all women are prohibited from working at night between the hours of 9 p. m. and 5 a. m. Female children and women are to have at least 11 consecutive hours' night rest. In certain industries exceptions are made for females over 18 years of age during certain seasons of the year for a period not exceeding 60 days; but the maximum daily work must not exceed 12 hours. The regulations for Sunday and holiday work are also subject to a great many exceptions and exemptions which may be given to special industries on certain occasions. Children under 13 years are prohibited from working as actors, or in theaters, cafés, etc.

By the decree of May 13, 1893, modified by subsequent decrees of 1897, 1899, 1900, 1905, 1908, 1910, and 1911, the work of women and children in dangerous trades is specially regulated.¹ These decrees specify the industries, time of day and night, amount of weight to

¹ The decree of May 13, 1893, was replaced by the decree of Mar. 21, 1914, making a number of modifications in the details of the law.

be carried, etc.¹ Three tables are given of industrial establishments in which the labor of women and children under 18 years is prohibited or restricted and the reasons for such prohibition.

The first table gives the establishments in which such work is entirely prohibited for children under 18 years and for women.

The second table gives the establishments which are prohibited from employing children under 18 years.

The third table gives the establishments in which the labor of children under 18 years and of women is restricted; and the conditions of such restrictions.

INDUSTRIAL CONDITIONS.

The laws regulating industrial conditions are applicable to all factories, workshops, work yards, laboratories, kitchens, wine cellars, warehouses, stores, offices, loading and unloading and their accessories of whatever nature they may be, public or private, lay or religious, philanthropic or professional. The only establishments or workshops to which laws are not applicable are those in which work is being done under the sole authority of the father, mother, or guardian; but even for these, if the work is done by the aid of machinery or motor power, or is classed as dangerous or unhealthy, the inspectors of labor have to prescribe certain measures of safety and health.

The general regulations of industrial conditions as to health and safety consist in measures for lighting, heating, and ventilation of establishments, provision of drinking water, or proper toilets, the removal of dust and fumes and protection from fire. They will be given in greater detail in a later section.

Special regulations relate to Paris green (1895), to lead and lead compounds (1902, 1904), to lead industries (1908, 1909), to laundries (1905), electrical establishments (1907), first aid in electrical establishments (August, 1912), compressed air (1908), establishments in which hides, skins, hair, etc., are handled (1910-11), carrotting—nitrate of mercury treatment of fur (1911-12), glass blowing by mouth (1911), cement works (1911), prohibition of the use in textile industries of fabrics which have been used as bandages or for dressing (1911).

In most of the dangerous trades and establishments which have been mentioned and many of those which are classified, a medical examination of employees is obligatory. A special register must be kept in each establishment in which is stated the date and duration of absence for sickness, the date of the certificate presented, which justifies the absence, and a medical certificate on return to work. A certificate is required upon beginning work, which must be renewed every three months.

¹ See Bulletin of the United States Bureau of Labor Statistics, No. 89, p. 163 et seq.

The section of the code relating to industrial accidents consists of a number of laws which prescribe not only the reporting of accidents to the local authorities and the inspectors, but give the laws of compensation in detail.

ADMINISTRATION.

The third part of Book II of the code, modified by a number of subsequent laws, decrees, and orders relates to the enforcement of the labor laws. The first part of this code consists of regulations as to notices, registers, and books to be kept in each establishment. The provisions of the code relating to labor of women and children and general regulations concerning the industry and the name and address of the inspector of the district must be posted in every factory. It must also contain the exact hour at which work is begun daily, the number of hours of labor and the pauses for rest. A duplicate of such notice is sent to the inspector and a triplicate copy is left with the mayor of the district. A copy of the law and the notice which is posted must be signed by the inspector on each visit.

Children under 18 years are compelled to have work books, which are given to them by the mayor of the district. A register is also kept by the employers of the date of engagement of workers and of their discharge.

Duties of inspectors.

The labor inspectors are not charged with the enforcement of the law in mines and quarries, which are under the jurisdiction of the mining inspectors.

The labor inspectors have no jurisdiction over State works as far as Sunday rest is concerned. This is in charge of another ministry. In State establishments which have to do with national defense, the enforcement of the laws is confined to special agents under the Ministry of War and the Navy.

The enforcement of section 64 of the code relating to the prohibition of employing foreigners without a certificate is under the jurisdiction of the police authorities. The duties of the labor inspectors relate to all other establishments, as previously indicated.

The duties of the inspectors are to visit all industrial establishments in their districts and to enforce the provisions of the laws for the protection of workers according to the Labor Code. The inspectors also gather whatever statistical data are required. Inspectors must act as witnesses in court in cases of violations of the law preferred on their information. They have the right of entry to all establishments under their control during the day and during the night while work is being done.

Commission Supérieur du Travail.

The Commission Supérieur du Travail in the Ministry of Labor exercises the following functions:

1. Supervision of the uniform application of the laws concerning the work of children and women;
2. The giving of advice as to new rules and regulations for the protection of workers;
3. The determination of the qualifications for the selection of candidates for the inspectorial service and the prescribing of a test for the civil service examination.

The commission consists of nine persons, who work without compensation; namely, two senators and two deputies elected by their colleagues, and five members nominated by the President of the Republic for a period of four years.

Each year the president of the Commission Supérieur du Travail must submit to the President of the Republic a general report of the results of inspection, and on the enforcement of the provisions of the law. This report is to be published in the "Journal Officiel" in the same month in which it has been made.

The general councils of the departments must institute one or more commissions whose duty it is to present reports on the enforcement of the provisions of the law, and on amendments which may be necessary. These reports are sent to the minister and communicated to the Superior Commission.

Divisional and departmental factory inspectors, the presidents and vice presidents of the "conseil de prud'hommes" of the principal city or industrial center of the department, and the mining engineer, where such an official exists, are by law members of these commissions within their respective jurisdictions.

In each department protective committees are to be instituted with the object of (1) protecting apprentices and children employed in the industry, and (2) promoting their technical instruction.

The general council in each department determines the number and district of jurisdiction of the protective committees, the by-laws of which are to be approved in the Department of the Seine by the Minister of the Interior and the Minister of Labor, and in other departments by the prefects.

The protective committees are administered by a commission composed of seven members, of which four are named by the general council and three by the prefect for a term of three years. Members whose term of office has expired may be renominated. They serve without compensation.

Penalties.

The penalties for violations of the laws for protection of workers vary, and are increased in case of repetition of the offense. All violations of the provisions of Book II of the Labor Code except violations for which special fines are provided in the code are punishable by a fine of from 5 to 15 francs (96.5 cents to \$2.90), and for a repeated offense from 16 to 100 francs (\$3.09 to \$19.30). The same fine may be imposed as many times as persons are employed under conditions in violation of Book II of the Labor Code. Such cumulative fines, however, may in the case of first offenses not exceed a maximum of 500 francs (\$96.50); for repeated offenses the maximum cumulative fine which may be imposed for infractions of articles 9 to 13 (work below ground) is 2,000 francs (\$386), and 3,000 francs (\$579) for infractions of Chapter IV of Title I (Sunday rest).

Special penalties are provided for violations of the following provisions: Of articles 6 and 8 (hours of labor) and administrative decrees issued in pursuance of these articles 5 to 100 francs (96.5 cents to \$19.30) and a cumulative maximum of 1,000 francs (\$193); of articles 18, 29, and 54 (apprentices) 5 to 15 francs (96.5 cents to \$2.90); and in case of a repeated offense imprisonment for from 1 to 5 days; of articles 60 and 61, 16 to 200 francs (\$3.09 to \$38.60), of article 92 imprisonment from 1 to 6 months and a fine of from 16 to 50 francs (\$3.09 to \$9.65), and of article 62, the penalties provided by article 276 of the penal code—all these articles relate to the employment of children in itinerant trades; of article 64 (employment of foreigners) police fines; of the provisions of Chapters I and IV of Title II (hygiene and safety of workers), 5 to 15 francs (96.5 cents to \$2.90) and a cumulative maximum fine of 200 francs (\$38.60) for first offenses, and 50 to 500 francs (\$9.65 to \$96.50) and a cumulative maximum fine of 2,000 francs (\$386) in case of repeated offenses.

Interference with the work of inspectors is punishable by a fine of 100 to 500 francs (\$19.30 to \$96.50) and in case of repetition from 500 to 1,000 francs (\$96.50 to \$193). Acts of resistance or violence against inspectors are also punishable according to the provisions of the penal code, which provide penalties for resistance of police officers.

Notices of fines and violations of the law as well as the names and addresses of the violators may also be published at the expense of the offender in one or more newspapers of the Department in which such person is located.

ORGANIZATION.

Labor and factory inspection is under the jurisdiction of the Ministry of Labor and Social Welfare, created in 1906. The director of labor, under this ministry, has charge of the inspection of mines and quarries as well as of industrial inspection. Industrial inspec-

tion is under the charge of a bureau of inspection which has its chief, who is thus nominally the chief of industrial labor inspection.

The inspectorial service consists of 142 inspectors, as follows:

Division inspectors, each in charge of a separate division (<i>circonscription</i>) of the country.....	11
Department inspectors, each in charge of a district under the division inspectors:	
Male.....	113
Female.....	18

The whole of France is divided into 11 divisions (*circonscriptions*), each of which is in charge of a division inspector, who has under him a number of inspectors—male and female. The following is the location of the office of each division and the number of inspectors of each sex in each division:

Division.	Office.	Number of inspectors.	
		Male.	Female.
First.....	Paris.....	22	12
Second.....	Limoges.....	7	.....
Third.....	Dijon.....	8	.....
Fourth.....	Nancy.....	10	.....
Fifth.....	Lille.....	13	1
Sixth.....	Rouen.....	10	1
Seventh.....	Nantes.....	8	1
Eighth.....	Bordeaux.....	7	1
Ninth.....	Toulouse.....	10	1
Tenth.....	Marseilles.....	11	1
Eleventh.....	Lyon.....		

CLASSIFICATION AND GRADING.

There are three classes of division inspectors and five classes of departmental inspectors, as follows:

Class.	<i>Division inspectors.</i>	Salary.
First.....	8, 000 francs (\$1,544.00)	
Second.....	7, 000 francs (\$1,351.00)	
Third.....	6, 000 francs (\$1,158.00)	

	<i>Department inspectors.</i>	
First.....	5, 000 francs (\$965.00)	
Second.....	4, 500 francs (\$868.50)	
Third.....	4, 000 francs (\$772.00)	
Fourth.....	3, 500 francs (\$675.50)	
Fifth.....	3, 000 francs (\$579.00)	
Inspector stagiaires (probationary inspectors).....	2, 400 francs (\$463.20)	

TRAVELING EXPENSES.

The Minister of Commerce and Industry and the Minister of Posts and Telegraphs are the authorities who fix the traveling expenses. Division inspectors travel first class and department inspectors travel second class. They are allowed 50 centimes per kilometer (15.5 cents

per mile) and 15 francs (\$2.90) per day. The allowance for individual transportation is not given unless the inspector makes a journey of at least 6 kilometers (3.73 miles) and return. An allowance of 15 francs (\$2.90) per day is given to an inspector for two meals and a night outside of his residence. In case only a part of the time is passed in his travel the allowance is 5 francs (96.5 cents) for each of the two meals and 5 francs (96.5 cents) for a night's lodging.

The division inspector of Paris receives 3,000 francs (\$579) per year as traveling expenses for the Department of the Seine. The department inspector in charge of the first district in this department receives a fixed allowance of 1,500 francs (\$289.50) per year. The male and female department inspectors of the department receive a fixed allowance of 600 francs (\$115.80) for traveling expenses within the environs of Paris, while 900 francs (\$173.70) is allowed inspectors whose districts are outside of the fortifications. Inspectors have the franking privilege.

No department inspectors are allowed any expenses for the hiring of offices, such offices being allowed only to the division inspectors—an allowance of 2,200 francs (\$424.60) to the division inspector of the first district in Paris, 1,800 francs (\$347.40) to the division inspector of the fifth district, Lille, and 1,500 francs (\$289.50) for all other division inspectors. This allowance is very small considering the rent to be paid, and the constant complaint is that the offices are very small, consisting usually of one or two rooms. As the department inspectors have no offices they conduct all their work from their own homes in the districts.

PROMOTION.

The promotion of inspectors from one class to another is according to a special ministerial decree, as follows:

Promotions are fixed every year by a special commission appointed for this purpose and are printed in the Bulletin of Inspection of Labor. The number of inspectors who are to be promoted every year from one class to another is fixed by the minister and this special commission. The commission is presided over by the Minister of Labor and Social Welfare, or in his absence by the director of labor. It consists of the following: (1) Director of labor; (2) chief clerk of the ministry (*chef du cabinet*) or in his absence the assistant chief clerk; (3) a member of the Commission Supérieure du Travail, nominated by the commission; (4) three labor members of the Conseil du Travail who are nominated each year and may not be renominated for more than three consecutive years; (5) the chief of the bureau of inspection of labor; (6) eleven division inspectors of labor; (7) three department inspectors of labor who are elected by their colleagues.

The inspectors who are members of the commission do not take part in the discussion of matters affecting promotion of inspectors of their own or a higher class. In case of division of votes the president has the deciding vote.

No inspector may be promoted from one class to another unless he remains three years in the class from which he is to be promoted. Division inspectors are always appointed from the department inspectors of at least the second class. Promotion is based on merit and seniority; in certain cases on seniority only.

REWARDS, ETC.

Besides promotion of inspectors from one class to another, and the rewards given them by transfer to a more important district, they receive certain honorable distinctions. Thus, the last Bulletin of the Inspection of Labor of 1913 states that according to a decree of the Minister of Instruction, Inspectors Guillet and Drangon were nominated as officers of public instruction. Inspector Villard was nominated an officer of the academy. Department Inspectors Garon and Roc were named inspectors of the academy.

LEAVES OF ABSENCE.

Labor inspectors are entitled to vacations on full salary. If no leave of absence is asked for by an inspector during three years, he is entitled to one month's vacation with full salary. For leaves of absence of less than three months the loss of salary is from one-half to two-thirds. An absence of more than three months, either consecutive or in one year, is subtracted from service counted for pension or promotion. In case of sickness a longer absence is allowed with full salary. Such absence, however, must not exceed three months. During the three months following, an inspector may be allowed a leave of absence with a deduction of from one-half to not more than two-thirds of his salary. Leaves of absence for no longer than five days may be granted by the division inspectors and department inspectors without special procedure.

PENSIONS.

The labor inspectors have the right to pensions under the same conditions as public functionaries. Inspectors may receive a retirement pension after 20 years of service upon reaching the age of 55 years. The pension is half of the average salary which an inspector has enjoyed during the last six years. Retiring inspectors, especially division inspectors, may, at their retirement, receive the title of honorary division inspector.

DISCIPLINE.

The ministerial decrees also provide for disciplinary measures to be applied to the inspectors for infractions of regulations. A special disciplinary board is each year appointed, which consists of the following: The director of labor who acts as president, the chief clerk of the ministry (*chef du cabinet*) or in his absence the assistant chief clerk, a member of the Commission Supérieure du Travail appointed by the minister, and the chief of the bureau of inspection or of some other bureau of the Direction du Travail, a division inspector designated by the minister, two division inspectors designated by their colleagues, and two department inspectors elected by their colleagues. The two last named classes of members participate in the sessions of the board only if the latter sits in judgment on inspectors of their own class.

When an inspector gives cause for disciplinary measures, he is requested to furnish a written explanation of the charges against him. If his explanation is not judged sufficient or if the inspector refuses to furnish any explanation, the whole matter is referred by the minister to the disciplinary board. Five members of the board constitute a quorum. A record (*protocole*) must be kept of all the proceedings of the council. The accused inspector may be present to defend himself. He may address the council in his defense either by written or by oral argument. The vote of the council is secret. In case of a tie the finding most favorable to the accused inspector is adopted.

The disciplinary measures to which an inspector may be subjected are the following: (1) Reprimand entered in the record; (2) transfer from one district to another; (3) loss of a certain number of months of seniority for promotion; (4) demotion to a lower grade; (5) suspension from office; (6) discharge.

BUDGET.

The budget for the labor inspection department for 1912 was 591,000 francs (\$114,063) for salaries and 245,500 francs (\$47,381.50) for other expenses; total of 836,500 francs (\$161,444.50).

SELECTION, EXAMINATION, ETC.

Outside of Prussia and Saxony there is no country that makes such detailed provisions for the selection and examination of candidates for inspectors as France. As already noted, all the division and department inspectors are appointed by the Minister of Labor and Social Welfare, and are under the jurisdiction of the bureau of labor. The division inspectors are chosen from the inspectors of the first and second classes. All male and female inspectors are

recruited by competitive examination. The requirements for admission to the examination are the following:¹

1. The applicants for positions of inspectors must be at least 26 years of age and not older than 35 years. No exception is made to the age limit.

2. Candidates must undergo a physical examination by a physician designated by the Minister of Labor. No candidate may be accepted as a labor inspector who on account of sickness or infirmities is unable to perform active work. The physical examination is made only after the candidate passes his written tests.

3. An authentic copy of the certificate of birth of the applicant, or a certificate establishing his French citizenship.

4. A certificate of good character.

5. A certificate that the candidate performed military service or has been exempted from same, with the statement of the causes for such exemption.

6. The signed life history of the candidate giving his titles, his course of study, his past and present places of residence, the nature of his previous occupations, and the establishments in which he has been working.

7. Such diplomas or certificates of universities, etc., as he may possess.

The full examination is in three divisions: (1) A written test, (2) an oral test, and (3) a practical shop test.

The written test involves the composition of three papers, one upon a question relating to the labor laws, one upon a question of industrial hygiene, and one upon a question of mechanics, electricity, and accident prevention. Three hours are allowed for the preparation of the first of these three papers, and two hours for each of the others. The oral test covers substantially the same field as the written test.

The scope of the written and oral tests is indicated by the following lists of subjects upon which questions may be asked:

1. Laws enforced by the labor inspectors, i. e., laws regarding hours of labor, woman and child labor, safety, etc.
2. Elements of administrative and penal law.
3. General labor and industrial legislation, i. e., such topics as conciliation and arbitration, industrial accident liability, labor councils.
4. Elements of industrial hygiene. This includes:
 - (a) General hygiene of work places—ventilation, heating, lighting, and cleaning of workrooms, toilet rooms, drinking water, sanitary appliances.
 - (b) The hygiene of particular processes and conditions—dust, gases; irritant and toxic materials; labor in high temperatures, in humid atmospheres, and in compressed air; effects and dangers of electricity; fatigue and overworking.
 - (c) Accidents. General knowledge as to accidents, wounds, poisonings, first aid.

¹ Le concours pour l'emploi d'inspecteur ou d'inspectrice du travail dans l'industrie. 4th edition. Bibliothèque d'enseignement administratif. Paris, 1912.

5. Elements of mechanics and electricity. This covers, in addition to the principles of general mechanics:
- (a) Applied mechanics—power transmission, resistance of materials, motors, textile machines, etc.
 - (b) Electricity—measurements of currents, characteristics of continuous and alternating currents, electric transmission, etc.
 - (c) Accident prevention, as related to the dangers of machinery, electricity, fire, stairways, shafts, etc.

There is no specific test in mathematics, but a certain knowledge of algebra, geometry, and trigonometry is regarded as essential.

The practical shop test is supplementary to the written and oral examinations. It is held in the National Conservatory of Arts and Trades in Paris, where in the presence of actual machinery and apparatus the candidate is subjected to further questioning as to his knowledge of mechanics, accident prevention, and industrial hygiene.

In addition to these several tests, a special shop examination, optional in character, is provided for the benefit of candidates who can show at least 10 years of practical industrial experience (inclusive of apprenticeship in a technical school or in a shop not exceeding three years) as manager, practical engineer, foreman, workman, or apprentice in a mechanically equipped establishment. This examination is entirely practical in character. It is held in a business establishment specified in the candidate's application, and the candidate must there demonstrate his working knowledge of a trade. He may be asked to perform an operation within his trade, and be questioned as to hygienic and safety matters related thereto. This test is not counted in the candidate's final rating unless a mark of at least 75 per cent is obtained.

The written examination is eliminative, and ordinarily a candidate failing to obtain a rating of at least 50 per cent may not be admitted to the oral test. In the case of a candidate electing the optional shop test, however, this minimum is reduced to 30 per cent. This plan is followed in order to facilitate the admission of candidates with practical shop knowledge, who might be able to obtain a high rating in the oral and shop tests, but be at a disadvantage in the written examination.

In the final rating, the written examination is given a weight of 12 points and the oral tests of 22 points. In addition 2 points are given for what is called the "personal equation." This is done in consideration of the fact that personality is an important element in an inspector's work. The rating allowed is based upon the previous record of the candidate and the impression produced upon the examiners.

In order to pass the full examination for inspector, it is necessary to obtain a rating of more than 25 per cent in each individual test and not less than 65 per cent in the combined marks.

Female candidates for the inspection service submit to the same examination as males, except that the oral test in mechanics and the optional shop test are not given to females, and the practical shop test is limited to accident prevention.

There is considerable competition for inspectors' positions. In the examination of November 4, 1907, for example, there were 115 candidates. The results of the written examination eliminated all but 31, and only 18 of these passed the oral examination and were appointed inspectors. To the examination for female inspectors held on November 18, 1907, 170 candidates were admitted. Only 16 of this number passed the written examination, and only 7 of these passed the oral examination and were appointed. Eighty-two candidates appeared at the examination for male inspectors on June 14, 1909, and only 28 of these were admitted to the oral tests, and only 11 passed.

Successful candidates are appointed on probation and are called "stagiaires." They are assigned to districts and have the same powers as regular inspectors. They have also the right to traveling expenses and other indemnities. The male and female inspectors when appointed receive an annual salary of 2,400 francs (\$463.20). At the expiration of the first year they are promoted to inspectors of the fifth class. The probationary inspectors, as soon as appointed, are installed in their functions by the chief prefect of the department, from whom they take the professional oath of office as prescribed by the law, which specially relates to prohibition of revealing trade secrets.

Since 1907 a course of 20 lectures on industrial hygiene for candidates for inspectorships has been given by Prof. Heim, under the auspices of the Ministry of Labor, at the National Conservatory of Arts and Trades. The practical work in the laboratory includes the handling of various instruments, such as psychrometers, hygrometers, anemometers, the analysis of potable waters, analysis of air, the tests for dust, etc.

WORK OF THE DEPARTMENT OF INSPECTION AND CRITICISM OF THE ORGANIZATION AND WORK OF THE INSPECTORS.

WORK OF THE INSPECTORS.

The following summary of the activities of the labor inspectors of France is based upon the latest report issued, that of 1911.¹ During 1911 there were in the labor inspection department 142 inspectors.

¹ Ministère du Travail et de la Prévoyance Sociale: Rapports sur l'application des lois réglementant le travail en 1911.

The total number of establishments under the jurisdiction of the labor inspectors, according to a special statistical investigation made during 1911, was 507,557. This number is somewhat less than that estimated by the department before 1911, which was not based upon statistical data. In this number are included industrial establishments connected with agricultural work, and those which are commercial in character, as well as state and municipal establishments.

The following table gives the number of establishments and workers in the seven most important industries:

Industry.	Number of establishments.	Number of workers.
Clothing.....	70,951	428,687
Food products.....	62,688	333,836
Wood industry.....	58,700	310,380
Metal trades.....	58,123	578,633
Construction work.....	40,857	338,825
Leather and hides.....	19,511	138,667
Textiles.....	17,481	681,150

The number of industrial establishments does not include all the domestic workshops over which the inspectors have some control, or the family workshops over which the inspectors have no control whatever.

Existing establishments and workers therein.

The existing establishments are classified also according to the labor laws to which they are subject. Thus, there were—

- a. 10,331 establishments subject to the law of July 13, 1906.
- b. 39,556 establishments subject to the law of Sept. 9, 1848.
- c. 165,831 establishments subject to the law of Mar. 30, 1900.
- d. 291,839 establishments subject to the laws of June 12, 1893, July 11, 1903, and July 13, 1906.¹

The existing establishments are also classified according to the number of persons in each establishment. The following table shows the establishments thus classified:²

Number of persons.	Number of establishments.	Per cent.
Establishments having from 1 to 5 persons.....	402,186	79.25
Establishments having from 6 to 20 persons.....	74,587	14.68
Establishments having from 21 to 100 persons.....	24,763	4.88
Establishments having from 101 to 500 persons.....	5,433	1.07
Establishments having more than 500 persons.....	608	.12
Total.....	507,557	.....

¹ Idem, p. III.

² Idem, p. V.

The following table shows the age and sex of the 4,258,617 workers and employees working in establishments subject to the supervision of the inspectors of labor:

	Number of workers.	Per cent.
Males under 18 years.....	336,040	7.8
Females under 18 years.....	286,578	6.7
Females over 18 years.....	914,214	21.4
Adult males over 18 years.....	2,721,785	64.1
Total.....	4,258,617	.....

Inspections made.

There were 142 inspectors in 1911. The number of establishments visited in 1911 was 167,483. According to the laws to which these establishments are subject they were classified as follows:¹

	Establishments inspected.	
	Number.	Per cent of total.
Subject to the law of July 13, 1906.....	911	8.8
Subject to the laws of June 12, 1893; July 11, 1903; July 13, 1906.....	65,032	22.3
Subject to the law of Sept. 9, 1848.....	18,835	47.6
Subject to the law of Mar. 20, 1900.....	82,705	49.8
Total.....	167,483	.....

As to the importance of the establishments inspected this can be judged from the fact that in these establishments there were working not less than 2,732,388 persons, or 64 per cent of the total workers in all the establishments under the supervision of the inspectors.

Of the 622,618 children under 18 years old who were working in the establishments under the control of the inspectors there were 408,711, or 65.6 per cent, in the establishments which had actually been inspected. The average number of inspections per individual inspector is reported as being not less than 1,500.

The following table gives the total number of inspectors and inspections since 1894:

Year.	Total number of inspectors.	Total number of inspections.	Year.	Total number of inspectors.	Total number of inspections.
1894.....	106	128,800	1903.....	121	170,116
1895.....	106	133,734	1904.....	121	167,224
1896.....	106	140,878	1905.....	122	166,751
1897.....	106	146,504	1906.....	128	178,007
1898.....	106	144,485	1907.....	128	181,842
1899.....	106	145,911	1908.....	133	192,148
1900.....	106	145,132	1909.....	139	200,623
1901.....	108	146,180	1910.....	139	207,102
1902.....	121	152,185	1911.....	142	210,062

¹ Idem, p. XI.

The inspectors received in 1911, 9,288 written complaints, of which 4,578 were discovered to be unfounded. Of the 9,288 complaints received 4,727 were anonymous; nevertheless, 41.3 per cent of these were well founded. There were 1,716 from workers, 2,082 from labor organizations, and the rest were from other persons, 95 being from employers' organizations.¹

The actual number of inspections made by all the inspectors was 210,062, of which 170,072 were made during the day by the department inspectors and 732 at night; reinspections were made by the department inspectors, amounting to 30,590 during the day and 1,966 at night, a total of 203,360 inspections made by the department inspectors.

The eleven division inspectors made a total of 6,702 inspections, of which there were 933 day inspections, 1 night inspection, 5,735 reinspections during the day, and 33 night reinspections.

The inspectors gave special exemptions for work at night in 11 establishments, employing 275 young persons between 13 and 18 years old and 439 females above 18 years old. The inspectors also gave exemptions in 325 establishments for work after 11 p. m. The division inspectors gave exemptions to the decree of July 15, 1893, for overtime work in 9,271 establishments, the number of hours overtime permitted being as follows:

	Hours.
For children under 18 years.....	1, 662, 392
For women over 18 years.....	4, 090, 870
For adult workers.....	4, 615, 964

The division inspectors also gave 540,951 permits for Sunday work.

Working permits for children under 13 years of age were allowed in 173 cases, affecting 378 boys and 379 girls.

The number of violations discovered by the inspectors were 27,615. The number of protocols made were 6,774, and the fines imposed in these cases amounted to 91,075 francs (\$17,577.48). Of the violations found by the inspectors 2,724 were those of the regulations as to keeping of work books, registers, etc.; 1,564 for posting of notices, etc.; 2,923 for the hours of work; 459 for exceeding the age for admission; 511 for unprotected machinery; 1,439 for nightwork; and 412 for nonobservation of holiday law. Besides the violations found by the inspectors, 4,226 violations were found by the judicial police officers, and 1,640 protocols were made by them.

A total number of 474,396 accidents were reported; the largest number amounting to 105,767 occurred in the metal industry. The number of accidents in other industries are tabulated as follows:

In construction work.....	64, 308
In transportation.....	47, 325
In chemical industry.....	22, 011

¹ Idem, p. LXXXI.

In the food industry.....	25, 961
In the textile industry.....	29, 062
In the wood industry.....	29, 203
In metallurgical establishments.....	38, 998

Of the accidents reported 2,002 proved fatal, and in 5,449 cases persons were permanently incapacitated. The classification of the number of accidents according to the persons injured was as follows:

Male adults.....	408, 860
Female adults.....	18, 940
Male persons under 18 years.....	39, 965
Females under 18 years.....	6, 631

Scientific and educational work of the inspectors.

In spite of the fact that the number of inspectors is entirely out of proportion to the number of industrial establishments, and in spite of the wide scope of their work, many of them still found time for considerable scientific work, as is evidenced by the publications of the department of labor, in which some of the original work of the inspectors appears. One must also remember that most of the inspectors are not scientifically trained engineers, as in Germany. The following is a list of original contributions by the inspectors appearing in the Bulletin of Inspection of Labor and Industrial Hygiene for 1912:¹

1. A study on the industry of enameling metals in the region of the Ardennes and on the hygienic measures used for the prevention of lead poisoning, by M. César, departmental factory inspector at Charleville.
2. A study on calculations for a plan to dispose of vapors by M. Moncé, departmental factory inspector at Paris.
3. A study on the ventilation of a workroom for the sorting of old paper in the wrapping paper factories, by M. Bailly, departmental factory inspector at Angoulême.
4. A study on dust protection in a workshop where the materials of a cut-glass factory are mixed, by M. Aribout, departmental factory inspector at Paris.
5. A study on the ventilation of a glass factory and mechanical transportation of bottles, by M. Barral, division factory inspector at Lyons.
6. A study on the hygienic conditions of the workers in the turbin rooms of sugar works, by M. Pierre Pouillot, departmental factory inspector at Paris.
7. A study on the protection of centrifugal linen drying machines, by M. Frois, departmental factory inspector at Paris.
8. A study on the prevention of the bursting of flywheels, by M. A. Le Brun, departmental factory inspector at Paris.
9. A study on two kinds of safety appliances for rag breaking machines, by M. Pouyanne, departmental factory inspector at Elbeuf.
10. A study on apparatus for the prevention of dust in cotton carding factories, by M. Magnier, departmental factory inspector at Rouen.
11. A study on the apparatus for protecting a fleshing machine.
12. A study on a certain number of German installations for carrying off dust, vapors, and gases, by M. Boulin, division inspector at Lille.
13. A note on automatic machines for gathering up and blowing of glass for bottles, by M. Martin, division factory inspector at Marseilles.

¹ Bulletin de l'Inspection du Travail, 1912.

14. A study on means employed in Marseilles glassworks to protect glassworkers employed in the proximity of furnaces against the heat and high temperature of the work place, by M. Capoduro, departmental factory inspector at Marseilles.
15. A study on protection against high temperatures in glassworks, by M. Orliac, departmental factory inspector at Amiens.
16. A study of the catching and removal of dust in the metal industry, and in particular in polishing rooms, by M. Frois, departmental factory inspector at Paris.
17. A study on several kinds of guards used on mechanical presses for cutting, stamping, and engraving metals, by M. Pouyanne, departmental factory inspector at Elbeuf.
18. A study on the prevention of bisulphide of carbon gases in a factory for the vulcanizing of rubber, by M. Auribault, departmental factory inspector at Paris.
19. A study on a guard for a dough rolling machine, by M. Roth, departmental factory inspector at Paris.

There is also considerable educational work being done by the division inspectors by means of circulars and notices on tuberculosis and dangerous trades which are posted in the factories. The departmental inspectors are not in the habit of lecturing to the employees or to the employers and are discouraged from doing so.

CRITICISM OF THE ORGANIZATION AND WORK OF THE INSPECTORS.

The organization and work of the labor inspectors is much discussed by social workers, by representatives of labor organizations, and others deeply interested in the subject. Reference has already been made to some of the severe criticisms made by the representatives of labor in the English Parliament and also by the Social Democrat deputies in the German Reichstag as to the organization, efficiency, and methods of the work of the inspectors. In France the labor deputies in the National Assembly do not hesitate to express their radical views on this matter. There has been for a number of years a strong agitation in official circles, especially among the members of the Conseil Supérieur du Travail, who have expressed their opinions as to the need of reform of the present inspectorial system in France.

The Conseil Supérieur du Travail has from time to time ordered special investigations on the subject, and reports by Briat, Bourderon, and others give the criticisms of those most competent to judge the work and methods of French labor inspection.

The most interesting and important of these discussions took place in Paris during March and April, 1908, before the French National Association for Labor Legislation, a branch of the International Association for Labor Legislation. Former Minister Millerand presided, and the report was made by M. Eugène Petit, an attorney before the court of appeals of Paris, and discussed by members of the association.

In view of the importance of the criticisms embraced in M. Petit's report, and the fact that very little has been done since this discussion to radically reorganize the department of labor inspection, it will

be of interest to give here a résumé of the criticisms of M. Petit of the factory inspection of France, and the resolutions adopted by the association as to the necessary measures for reform of labor inspection.¹

M. Petit starts by quoting a declaration of M. Coupat, a member of the Conseil Supérieur du Travail, that "nothing is so dangerous for the laboring class as laws which are not enforced; for it is due to this nonenforcement that the workers are driven to accept anarchist doctrines."

He then quotes Bourderon, who says, "this nonenforcement leaves the workers to believe that laws for their protection are purely decorative, since laws which may injure them are always strictly enforced."

M. Petit speaks first on the subject of the insufficient number of inspectors. He says "The laws which are to be enforced are increasing each year without a corresponding increase in the number of inspectors; that while the number of establishments in 1894 was 267,906, they have grown in 1906 to the enormous total of 548,225, or nearly double; that the number of workers has increased 58 per cent from 1894 to 1906; that the number of accidents which have been reported (not including mines and quarries) has been increased from 212,753 in 1903 to 306,860 in 1906. But in spite of this increase in the scope and character of the work of the inspectors, the increase in their number was very small—from 106 in 1892 and 1893 to 122 in 1905—so that while the number of inspectors has been increased only 20 per cent, the number of establishments has been doubled, and the number of workers therein has been increased 58 per cent."

"What is the result of such a disproportion? Out of the total number of 548,225 establishments to be inspected in 1906 there were only 148,251 inspected, leaving 73 per cent, or nearly three-quarters, of all the establishments totally neglected. Even if we take into consideration the number of employees in the establishments inspected, we shall find more than two-fifths of all the workers in establishments which were not inspected, and 252,595 children under 18 years, or 43 per cent of the total, were among this number. This inequality of inspection to its task is in France a constant anomaly, and one which is continually aggravated. Ten years ago, in 1898, the inspectors visited 40 per cent of the establishments and 70 per cent of the protected persons; and now we have come to the point in 1906 where this proportion has fallen to 27 per cent of the establishments and 56.5 per cent of the workers."

"Of course," he continues, "I know that the number of infractions has increased from 6,033 in 1898 to 25,418 in 1900, but I leave you to judge of the real reasons for such increase. Of course I know that the number of visits are an incomplete criterion and imperfect

¹ La Réforme de l'Inspection du travail en France. Rapport de M. Eugène Petit, Association Nationale Française pour la protection légale des travailleurs.

measure of the activity of the inspectors, but it is a criterion that must be taken into consideration. In 1900 the director of labor told us that according to his experience 1,200 visits a year was a proper number for the inspectors; but at present we see that the inspectors have made more than 1,400 visits."

"Is the increase in the number of inspections made at the cost of the quality of inspection? If we compare the number of inspectors in the labor department with the number of inspectors in the mining division, we shall find that while there are 128 inspectors to inspect 548,235 establishments with 3,864,007 workers therein, there are in the mining division 175 inspectors outside of the 500 workmen mining inspectors for the inspection of only 38,912 establishments with 330,976 workers, of which 259,159 were found in establishments which were inspected."

He then proceeds to make a comparison of the quantity and quality of inspections as well as the scope of the inspectorial work in Germany, England, Austria, and Belgium, and other countries, and finds that France is much behind these countries in all respects. He comes to the conclusion of M. Coupat, of the Conseil Supérieur du Travail, who said, "Our country (France) is the poorest in means of exacting enforcement and respect for the laws protecting labor."

M. Petit then proceeds to a criticism of the insufficient traveling expenses and allowances for office rent given to the inspectors and claims that it immobilizes the inspectors, preventing them from making sufficient inspectorial journeys and interfering with their efficiency. He also points out that in France there is very little cooperation of other agencies in the enforcement of the labor law, while in England the local authorities and in Germany the police are taking a great part in the work of enforcement of labor laws. He shows that in 1904 the ordinary police found only 57 infractions of the law in Paris and not one in the Provinces, and that in 1905 the results were about the same. He says that the enforcement of labor laws is not the affair of the police; they are incompetent; they do not understand the labor laws nor the methods of enforcement; they have too many irons in the fire to be troubled with labor inspection.

He also claims that the assistance given by the employers and employers' organizations to the inspectors is insufficient, and that a great many of them are opposed to an increase of the inspectorial service. He quotes from M. Troubat, an employer and member of the Conseil Supérieur du Travail and the president of the associations of millers, who affirmed that the actual corps of inspectors was large enough for the control of establishments, because 82 per cent of the establishments are those having less than five workers, and hence have merely a statistical interest. M. Petit criticises this attitude of the employers, pointing out that 400,000 workers are concerned and

that it is just in these smaller establishments that the laws of hygiene and safety are most frequently violated.

In the opinion of other employers—for instance, M. Mortier, of the Conseil Supérieur du Travail—the inspectors are detestable oppressors and enemies of liberty. M. Petit also brings out the fact that in the vote of the Conseil Supérieur du Travail several members abstained from voting for an increase in the number of inspectors because of a question of administration and very ironically remarks that if it were a question of the increase of police to protect the employers' persons and property, their vote would have been different.

M. Petit summarizes the results of the insufficient number of inspectors thus: It brings legitimate discontent to the workers who see themselves menaced in their health and lives by the lack of supervision which has been promised as their due. It also results in the fatigue and in the discouragement of the inspectors who find themselves unequal to the task. The results are also the inefficiency of the rare visits of inspections which are too rapid and too hurried, and, what is most important, the inequality and nonuniformity in the enforcement of the laws for the protection of labor, which leads a great many of the inspectors to exclaim, "No inspection at all or inspection for all."

He then proceeds to the discussion of the judicial procedure and the difficulty of obtaining penalties heavy enough to prevent violations of the law. He says, "That it is evident that no matter how large the number of inspectors may be or how well they are organized, the work will be inefficient if the employers are let out very cheaply when they are caught violating the law. This condition, M. Petit says, can not be remedied either by the vigilance of the inspectors or by increasing their number. He quotes several court decisions on the subject of posting notices, etc., by which the work of the inspectors has been entirely nullified.

In regard to nightwork, inspection has been similarly nullified by a court decision, that inspectors can not enter a factory unless they are sure that night work is being done; but how can they find out unless they go into it? Such situations, he adds, are the games of rulers and judges, whose cost is borne by the workers. M. Petit also satirically compares the penalties with those imposed by magistrates for food adulterations, and claims that the workers are entitled to at least as much protection as prunes. He further states that in 1905 the total amount of penalties imposed for 25,599 violations was only 93,416 francs (\$18,029.29), or about 3 francs and 65 centimes (70 cents) for each violation.

Coming to the question of the incompetence of the inspectors and the method of their selection, M. Petit has the following to say:

"We do not only claim that inspectors are insufficient in number but also that they are incompetent; that they are lacking in the

technical and practical knowledge indispensable to the exercising of their functions; that there are some among them who can not discover violations relating to hygiene and security of the workers, who do not know the remedies for these violations, nor are equal to finding out all the subterfuges used by employers to evade inspection."

He says that "the opinion among the workers on this question is undoubted," and that M. Coupat, in his report to the Conseil Supérieur du Travail, cited facts which give examples of enormous mistakes of the inspectors. He mentions especially one where an inspector mistook a gas pipe for a belt shifter. He also cited the general opinion that the competence of inspectors leaves much to be desired; that there are very few model inspectors, etc.

This contention of M. Coupat was regarded by M. Fontaine as somewhat exaggerated, and M. Petit quotes M. Troubat, the employer member of the Conseil, as saying that the inspectors possess the knowledge necessary for all industries, and that they are able to answer all questions without difficulty.

M. Petit replied that this is too good to be true; that when the employers think so much of labor inspectors it is an evil sign. He does not deny that there are a number of inspectors who are doing good work, as may be judged from their original contributions to the Bulletin de l'Inspection du Travail, but that the number of such inspectors is small.

He proceeds to a severe arraignment of the present organization of labor inspection in France, of its lack of uniformity, of the fact that there is no general head of the whole department, that there are no specialists in branches of industrial hygiene, and that there are no physicians and medical inspectors or technical specialists in other branches as in other countries. He also criticizes very severely the present methods of selection from civil-service examinations to which the inspectors are subject.

The discussion of M. Petit's report discloses a general admission of most of the points of his criticisms. After long discussion the following resolutions were adopted by the association:¹

1. The association, renewing the resolution already passed in its session of March, 1904, resolves that the Chamber of Deputies substitute for the granting of exemptions from the legal hours of labor a system of notices for that of authorization by the division inspector.
2. That the traveling expenses allowed to inspectors be placed at a sufficiently high figure, so that the activity of these officials may not be suspended before the end of each year by reason of an insufficient amount.
3. That the factory inspectors, while using as circumstances permit, the friendly cooperation of industrial associations founded for the purpose of securing better hygiene and safety in the workshops

¹ La Reforme de l'Inspection du travail en France. Rapport de M. Eugène Petit, Association Nationale Française pour la protection légale des travailleurs, p. 233.

shall not neglect a supervision with which they have been charged, and for which they must keep the entire responsibility.

4. That the number of inspectors shall be increased and that with the least possible delay a method shall be devised whereby establishments employing more than five workers may be visited at least once a year, the others at least once every three years, and that appeals for the help of the police to insure enforcement of the law shall be made only in the smallest possible measure.

5. That more frequent conferences of division inspectors held under the auspices of the Minister of Labor will assure greater uniformity in the application of laws regulating labor.

6. That the efforts of the inspection service to enforce respect for the laws regulating labor may not be partially annulled by the periodical passage of laws of exemption.

7. The association voted "no" on the proposition for a double examination for appointment to the inspection service.

8. The association voted "no" on the proposition to create a corps of technical underinspectors for labor.

9. That the minister of labor specially appoint, according to need, special inspectors for certain districts.

10. That practical methods should be studied for the purpose of avoiding the construction of new factories without having taken the necessary hygienic precautions or without having reserved means for carrying out these precautions; that in those industries classed as dangerous or unhealthy in the case of construction or reconstruction, total or partial, of an establishment coming under the inspection law, the plans shall be presented to the bureau of inspection in order that, before the actual building of the works, the bureau may give its advice on the necessary steps to be taken for the purpose of insuring the health and safety of the workers in conformity to the law of June 12, 1893, and July 11, 1903.

11. That the issuance of certificates of physical fitness provided for by paragraphs 3 and 4, Article II of the law of November 2, 1892, shall take place after the physician shall have become personally acquainted with the localities in which the young worker is or will be employed, and of the nature of work at which he is or will be employed.

12. That the doctors connected with the factory inspection shall be given charge of the issuance of certificates of physical fitness, and shall also cooperate in making sanitary inspections of the premises, processes, or methods of work whenever this shall be required of them by the factory inspectors.

METHODS OF INSPECTION.

The French department of labor inspection can not be said to have a centralized form of organization, although it has a chief of the bureau of inspectorial service under the director of labor. The chief of the bureau of inspection receives all the reports from the division inspectors, tabulates them and prepares them for the publications of the bureau of inspection. He does not seem to exercise any supervisory functions over the division inspectors, except in so far as he checks off their work, their clerical activities and expense accounts, and takes charge of the publication of their reports.

Each of the 11 division inspectors is the real head of his territory and has sole executive power over the departmental inspectors in his district. Uniformity of work is insured by the Conseil Supérieur du Travail, assisted by the annual conferences of the division inspectors, at which matters of service, uniformity of procedure, etc., are discussed. The meager allowances made to division inspectors for office rent compels them to have very small offices. Thus, the office of the division inspector of Paris consists of two small rooms, with one clerk, without any system of catalogue cards or any of the modern appliances of a model office.

The division inspectors, besides having general supervision over departmental inspectors, make quite a number of inspections themselves. As a rule, these visits are made on complaint or to specially dangerous establishments, or whenever some matter comes up which makes advisable a reinspection by a person of greater experience and knowledge. The division inspectors, having come up from the ranks are usually experienced men, and a number of them are highly technically trained men.

The extent of their supervision over the departmental inspectors is not very great since they do not require the inspectors to report to them frequently. Some of the inspectors do not report for weeks, or months, as no special reporting day or time is appointed. They receive monthly and trimonthly reports from the departmental inspectors, but do not supervise their daily work. No "dossier" or record of each establishment is kept either by the division or by the departmental inspectors. A record is kept only of the violations, summonses, and the general number of the visits made by the inspectors.

The offices of the departmental inspectors are in their homes, as they do not receive any allowance for the rental of offices. The departmental inspector lives in his district and his residence is designated on the registers and notices posted in each industrial establishment. As already noted, he does not report to the division office except on very rare occasions—all his communications with the central office being in written form. He has much clerical work to do—in filling in all the forms, making out the registers, notices, protocols, summonses, and other reports. The routine arrangement of his daily work is at his own discretion; some of the inspectors remain in their homes from the morning until 1 p. m., attending to clerical work and perhaps to interviews with employers and to complaints, then go out into their field of inspection in the afternoon and work in their districts three or four hours. Night inspections are rarely made, as the right of inspectors to enter establishments at night to discover whether work is being done is not yet

determined. Before inspectors can enter industrial establishments at night they must be sure that work is being done, and they are often refused admittance on the plea that no work is going on.

Department inspectors make from 1,200 to 1,500 inspections a year, besides receiving the reports of from 2,000 to 3,000 accidents in each district and doing clerical and other work.

The inspectors make no scientific tests whatever of air, light, ventilation, etc., and no special methods of inspection are used by them even in the inspection of establishments which are classed as dangerous, unhealthy, or obnoxious. There are no medical factory inspectors in France, and the inspection of dangerous trades therefore leaves much to be desired, in spite of the very detailed classification of dangerous trades and the abundance of laws and regulations, general and special, concerning these establishments.

The general methods of inspection do not differ from the methods universally pursued by inspectors. They consist, as in other countries, in the inspection of registers, notices, etc., on entrance into establishments, in the inspection of the protected persons, in the examination of sanitary conditions in the establishment, safety appliances, etc. One peculiarity of the methods of French inspectors is the division of the establishments into four classes, according to the laws which apply to the establishments or to the persons inspected. The inspection must separately state the persons under the protection of each law. This is illustrated by the following card of inspection:

Name of the establishment.....
Kind of establishment.....
Address.....
Dates of visits.....
Law of March 30, 1900: Children between 12 and 13 years,;
children between 13 and 18 years,; adult females,;
adult males,
Law of September 9, 1848: Male adults,
Law of June 12, 1893 (modified 1903): Persons under 18 years,;
adult females,; adult males,
Law of July 13, 1906: Persons under 18 years,; female
adults,; male adults,
Total number of persons.....
Table of working hours: Time of beginning,; time when
finished,; pauses,
Duration of work of adult males,
Rules for weekly pauses,
Work books,
State of hygiene and safety,
Motor power (horsepower): Steam,; hydraulic,;
other,
Remarks:

Under this heading the inspector must make all interesting indications concerning the establishments; schedules of hours of labor subsequently sent to the service, protocols, formal summonses, observations made in the course of visits, exemptions granted or in force, etc.

Another card gives the form of the visits made by the inspectors.

A special form for the reports of all establishments inspected during the month requires statistics in detail of the inspections made by day and night and the reinspections made, being a summary of the individual cards described above.

Another form gives a summary of the departmental inspectors' work to the division inspector every three months.

Special forms are used by the inspectors for (a) indication of an intended journey in his district, giving the dates, the localities, and addresses where he expects to be; (b) a detailed report of the expenses of the journey, including railroad travel, tramway, or public transportation, individual transportation, and the daily allowances to which he is entitled.

The notices of accidents which come to the inspectors are reported on a special form, entitled "Statistics of accidents for a special division, arrondissement, etc." The report contains the following items:

Designation of the establishment.

Address of the establishment.

Causes of the accident in detail.

The injuries caused by the accident.

Age and sex of the victim.

Investigations made concerning the accident.

A trimonthly report is made by the inspector of the number of accidents and the industries in which these accidents have occurred.

Unimportant violations, such as may readily be remedied, are, as a rule, not followed either by written notices or by formal reports (*protocoles*). The inspector knows most of the establishments and employers in his district, and on his visit usually gives them verbal notice of slight defects which are easily remedied, and for which no special order is needed. In case, however, of violations of the child or female labor law, or of important defects in the sanitation and safety of the establishment, the inspector usually gives written notices to the employer, stating the conditions found contrary to the provisions of the law. If the violations are of greater importance, the inspector writes a formal report (*protocole*), or what is called "Procès verbal," and sends a duplicate of this to the division inspector and to the prosecutor for further action. The procès verbal reads as follows:

In the year 19...., on date hour, we inspected the establishment, located at, owned by, and have found conditions to be as follows:

(The conditions contrary to the law are enumerated and the form further proceeds as follows:)

According to the law these are contraventions of the articles, and we are serving this procès verbal on (date).

(Signed)

Departmental inspector.

The inspector keeps on a special form a summary of all the procès verbaux he has made during the month.

The form of the report which he sends to the prosecutor is as follows:

Report No. transmitted to the State's attorney at
 Name and title of inspector who made the report
 Name of the delinquent Nature of the con-
 vention Date of the report
 Measures taken in the matter Date and
 terms of the judgment Time limit fixed
 for compliance with the protective and hygienic measures pre-
 scribed in the judgment
 Remarks:

Inspectors are usually called as witnesses in prosecutions held before magistrates and the division inspectors keep close track of the prosecutions and procès verbaux of the departmental inspectors. Certain exemptions may be given for the employment of children between 13 and 18 years. The notice sent to the division inspector is in the following form:

I have the honor to inform the division inspector that Mr.
, living at, is authorized to employ during
 hours per day (number of) children between 13 and
 18 years of age: (number of) females, commencing at
 hour in the morning and closing at in the evening, with a
 pause of This authorization is for a period.
 (Signed)
Departmental Inspector.

A table of the hours of work is usually posted in the establishment in the following form:

Establishment of
 Kind
 Address

DURATION OF WORK FOR ONE DAY TEN HOURS.

TIME-TABLE.

Hours of actual work
 In winter
 In summer
 Hour of commencing work
 Hour of finishing work
 First pause
 Second pause
 Other pauses
 (Signed)

STANDARDS.

The owner of each establishment is obliged to keep a register of the protected persons in the establishment, and on the covers of this register are published extracts from the labor laws and also the standards which have been adopted by the inspectors as to the hygiene and sanitation of the workers, according to a decree of November 29, 1904. The following are the most important standards:

1. All work places must be kept in a constant state of cleanliness; floors must be thoroughly cleaned at least once a day, either before the opening or after the closing of the factory; but never during the working period. This cleaning may be done either by washing or may be done with brooms or damp cloths, if the conditions of operation or the character of the covering of the floor makes it impossible to wash it. Walls and ceilings must be frequently cleaned. Walls must be plastered as often as is necessary.

2. In all places where work is carried on with decomposing organic matter the floor must be made impermeable and must be always level; the walls must be covered with some material which permits them to be well washed. In addition to this, the floors and the walls must be washed as often as is necessary with a disinfecting solution. A thorough scouring with the same solution must be given them at least once a year. No decaying matter must ever be kept in the work places, but must be removed by degrees, unless it is kept in metal receptacles, hermetically sealed, which must be emptied and cleaned at least once a day.

3. The air of workshops and all other work places must be kept constantly free from all emanations from drains, cesspools, water-closets, or any other source of pollution. In establishments which discharge waste water into a public or private sewer all communication between the sewer and the establishment must be guarded against by a hydraulic interceptor which must be sufficiently cleaned and washed at least once a day. Sinks must be sloped in the direction of the waste pipe and be cared for in such a way that there is no odor from them. They must be made of impermeable material and well joined. Work in cisterns, gas tanks, chimneys, sewers, cellars, or other places which may contain poisonous gases must not be undertaken until after the atmosphere has been cleaned by sufficient ventilation. Workers who are employed under such conditions must be provided with safety belts.

4. The toilets must not communicate directly with any inclosed work places. They must be well lighted and cleaned so that no odor is perceptible. The floors and walls must be made of impermeable material, and all the painting must be light in color. There must be at least one water-closet for 50 people and a sufficient number of urinals. No open sewer or similar arrangement may be established, except by the authorization of the administration under conditions provided by it.

5. No inclosed work place shall be crowded; the cubic air space for each person employed must never be less than 7 cubic meters [247.2 cubic feet]. The cubic air space for each person employed in laboratories, kitchens, or sheds for storing wine must never be less than 10 cubic meters [353.1 cubic feet]; the same amount is also required in stores,

shops, and offices which are open to the public. A notice must be affixed in each work place indicating its capacity in cubic meters. All inclosed work places must be well aired and in winter properly heated. They must be provided with windows or other openings which are directly connected with the outer air. The ventilation must be sufficient to prevent too great a rise in temperature. These work places and their dependencies, especially halls and stairways, must be well lighted. Yard guards must be provided with a shelter, and during winter some means of heating it.

6. Dust and gases which are disagreeable, unhealthy, or poisonous must be immediately drawn off away from the work places in proportion to their generation. For steam, vapors, gas, or light dust, funnels connected with the chimney must be installed or some similar means of elimination. For dust from mill wheels, grinding and crushing machinery, and all other dust-producing mechanical apparatus there must be installed drums which are connected with a mechanical suction system. Heavy gases, such as mercuric vapors or sulphuric carbide, must be drawn off downward, and the tables or apparatus must be kept in direct communication with the ventilator. The powdering of irritating or poisonous materials or other operations, such as sifting or packing, must be done mechanically in a closed apparatus. The air in workshops must be renewed in such a way that it remain sufficiently pure for the health of the workers.

7. In industries specified by ministerial decree, according to the advice of the consulting committee of arts and manufactures, vapors, gases, and dust must be condensed or destroyed.

8. Employees must never eat their meals in the work places. At the same time permission to take their meals there may be granted in case of need and after investigation by the division inspector under the following conditions: If the operation carried on does not necessitate the employment of poisonous substances; if it does not give off any kind of disagreeable, unhealthy, or poisonous gas or dust; if the other hygienic conditions are satisfactory. Employers must place at the disposition of their workers proper arrangements for cleanliness, dressing rooms with washbasins, as well as provide pure drinking water.

9. During the pauses of work the air of the work places must be entirely renewed.

10. Steam, gas, or electrical motors, hydraulic presses, or turbines must not be approached except by those workers who have charge of them. They must be separated by guards or protection barriers. Passages between machines, motors, or instruments driven by these motors must be at least 80 centimeters [31.50 inches] wide; the ground between them must be level. The stairways must be solid and guarded with strong balustrades. All wells, traps, cellars, basins, or reservoirs containing corrosive or hot materials must be provided with solid railings. Scaffolds must be provided on all sides with solid railings 90 centimeters [35.43 inches] high. Gangways for loading or unloading ships must be made in one piece and must be provided with railings on two sides.

11. All elevators must be arranged in such a way that the elevator shaft shall be entirely inclosed and the closing of the entrance to the shaft on each floor must be automatic, so that nothing can fall from

the elevator into the shaft. The load for passenger elevators must be calculated at one-third of that allowed for the carrying of freight, and elevators must be provided with brakes and other safeguards. All elevators must carry an indication of the maximum weight which they are allowed to lift.

Articles 12, 13, 14, and 15 contain some general statements in regard to safeguarding machinery, pulleys, flywheels, etc.

16. (a) Exits: The doors of workshops, offices, or warehouses where more than 10 workers are employed, and the doors of all workshops, stores, or offices where inflammable materials are manipulated must open outward, whether they open on courts, vestibules, etc., or other interior passageways, or whether they open directly out-of-doors. In the latter case this measure is not obligatory unless it is considered necessary for safety. In case of difference of opinion on this subject between the heads of the establishment and the inspectors, it must be determined by a decision with the Ministry of Labor. If the doors open on a hall or a stairway, they must be arranged in such a way that when they are opened they do not project upon the passageway. There must be a sufficient number of exits to allow the establishments to be emptied rapidly. These exits must be always kept unencumbered and free from merchandise, materials, or other objects. In large establishments plain inscriptions must point the way to the nearest exit. In addition, if the workshops are lighted by electricity, these exits must have a safety light. In workshops, stores, or bureaus where inflammable materials are handled, no habitual work place must be farther than 10 meters [32.8 feet] from an exit. Exits which are not continuously used during the working periods must open very easily from within, and must be indicated by a notice of "safety exit" written in large letters. In workshops, stores, or bureaus where inflammable materials are handled, the bars or gratings of all windows must be very easily opened from within.

(b) Stairways: Stairways leading to places of work must be constructed of incombustible material, either of wood covered with plaster at least 3 centimeters [1.2 inches] thick, or protected by some other covering of similar character. The number of stairways must be calculated in such a way that the emptying of all floors of a building containing workrooms can take place immediately. Every stairway having to serve for the simultaneous exit for 20 persons or more must have a minimum width of 1 meter [3.3 feet]; this width must be increased by 15 centimeters [5.9 inches] for each new group of employees from 1 to 50. The decision of the *Ministre du Travail et de la Prévoyance Sociale*, handed down after a consultation with the *comité des arts et manufactures*, can always, if necessary, prescribe a minimum number of two stairways.

The minimum width of interior passageways and of halls leading to stairways may be determined according to the rule stated above for stairways.

These passageways and hallways must be kept free from all encumbrances.

17. (a) Lighting and heating: Employers are forbidden to use as a means of lighting and heating any liquid which at a temperature below 35° C. [95° F.] gives off inflammable vapors unless the apparatus containing the liquid is securely fastened during work. The part

of this apparatus which holds the liquid must be impermeable, so that all leakage of the liquid is avoided. While the workers are in the factory the filling of such apparatus either in the workrooms or on the passages or stairways must not be done except by the light of day, and on the condition that no open fire in the workroom is burning. The pipes carrying the gas to the apparatus for lighting and heating must either be made of metal or covered with metal, or in some way securely protected by some incombustible material. The flames of lighting or portable heating apparatus must be distant vertically at least 1 meter [3.3 feet] and laterally at least 30 centimeters [11.8 inches] from all combustible parts of the construction of the room, from furniture, and from materials stored in the workroom. Lesser distances as regards walls and ceilings may be tolerated only in case of necessity when some incombustible material is interposed which does not touch the partition to be protected. Portable lighting apparatus must have a stable and solid support; fixed as well as portable lighting apparatus must, when necessary, be provided with a glass or a globe or some metallic netting or other protective device which will prevent the flame from coming into contact with inflammable materials. All inflammable liquids as well as rags or cotton soaked with such liquids or greasy substances must be kept in closed metallic receptacles. Such receptacles, as well as gas meters, receptacles for oil and refined petroleum, must be kept in separate rooms and never in the vicinity of halls or stairways. In establishments lighted by electricity the heads of the establishment must, in addition, conform to all the prescriptions coming under the application of article 3 of the law of June 12, 1893, modified by the law of July 11, 1903.

(b) Orders in case of fire: The heads of the establishment must take necessary measures so that in the interest of the safety of the workers the beginnings of a fire may be rapidly combatted. Notice must be fixed in every workroom indicating the means for the extinction of fire and for safety and the methods to follow in case of fire, with the names of the persons who must take part in these maneuvers. This notice must prescribe visits and periodical trials made for the purpose of discovering whether the material is in good condition and whether the workers are prepared to use it. This notice must be communicated to the bureau of labor inspection and the head of the establishment must oversee its enforcement.

18. Men and women workers who labor near machines must not wear loose or floating garments.

19. A ministerial decree, according to the nature of the factory, shall determine which of the provisions of the decree at present enforced must be posted.

20. The *Ministre du Travail et de la Prévoyance Sociale* may, by an order issued upon the report of the factory inspectors, and after consultation with the *Comité Consultatif des Arts et Manufactures* permit an establishment to dispense either permanently or temporarily with all or with a part of the provisions of article 1 (sec. 3), article 5 (secs. 2 and 5), article 9, article 10 (sec. 6), and article 16 (a) last paragraph, (b) next to the last paragraph, in case it is recognized that the application of these provisions is practically impossible and that the hygiene and security of the workers are assured in a manner at least equivalent to that provided by the present decree.

AUSTRIA.

SCOPE AND EXTENT OF PRESENT FACTORY LEGISLATION.

Legislation for the protection of workers in factories in Austria is based upon the law of 1852, the Industrial Code of 1859, and the Revised Industrial Code of 1885. The present form of administration of the labor laws dates its beginning from the act of 1883.

As in other countries the early beginning of labor legislation as well as of administration may be traced to the end of the eighteenth century. In a law (chancellor's decree) of September 28, 1786, some regulations may be found in regard to factory apprentices, providing for separation of dormitories for the sexes, one child apprentice to each bed, washing and bathing once a week, etc.

A chancellor's decree of February 18, 1787, amplifies the provisions of the former decree and stipulates that children under 9 shall not, without special need, be employed in factories.

In 1805 the compulsory 6-year-school-attendance law was enacted, limiting the work of children under 12 years of age.

The law of March 12, 1816, is an extension of former orders. It amplifies the former provisions for the protection of child workers and is justified in the following language:

As the danger of crippling and neglect of children is doubly great in factories, it is expected that the special attention of the physicians should be given to all the foregoing provisions.

Little extension of labor legislation is found after 1816 until the promulgation of the chancellor's decree of June 11, 1842, which may be regarded as the first important attempt at protection of workers in factories. This decree limited the work of children under 12 years, but permitted children over 9 to work if they had had three years' previous schooling. The hours of labor were limited to 10 for children from 9 to 12, and 12 for those over 12 years of age; night work between 9 p. m. and 5 a. m. was prohibited; one hour midday pause was allowed. A list of child workers was to be kept.

In 1846 the law was further extended by increasing the time allowed for pauses and also providing for medical examination of children under 12 when necessary. In the same year, by special act, provision was made for limiting the work of children in phosphorus match factories.

In 1854 the first law for the protection of workers in mines was passed and on December 20, 1859, the first Industrial Code relating

to larger establishments having more than 20 persons working therein was decreed. Child labor was prohibited before 10 years of age; the work of children between 10 and 14 was limited to 10 hours and of those between 14 and 16 to 12 hours. Children between 10 and 12 years could work only by special request of parents and by permit granted by the local authorities. Owners of factories were required to keep a register of their employees and violations of the law were followed either by a fine, or, if repeated, by a withdrawal of the right to employ workers.

Between 1859 and 1885 there were a great many attempts to further extend protection to workers by legislation; but very little was done until the enactment in 1885 of the new Industrial Code (*Gewerbeordnung*) upon which the present labor legislation of Austria has been established.

The laws for the protection of workers were not properly administered or enforced until the institution of factory inspection in 1883. One must note, however, that factory inspection is a very old institution in Austria. It existed in the Province of Bohemia as early as 1757, but was then abolished in 1772. Ministerial instructions of 1808 give the following as the functions of the inspectors, viz—to visit masters and factories; to inspect new tools and machines; and generally to study industrial processes and products.

In a court decree of November 6, 1810, mention is made of an inspector, of Kommissars, and clerks. It is true that the functions of the early factory inspectors were not really to protect the laborers themselves or the child workers, but to regulate industrial production, although by an order of March 12, 1816, the functions of the inspectors were extended to the then existing child labor protective laws. This institution, however, ceased to exist in 1825.¹

The enforcement of the law of 1842 was given to the local authorities consisting of the administrative police, of the district school superintendents, and of the local clergymen.

In 1845 there were shown to be 5,590 school children among the 38,124 workers in cotton-printing factories.

Generally it was admitted that the laws of 1842, 1846, and 1859 remained dead letters; that the exploitation of the workers by the employers was continued; that child labor was common and that there was little attempt at the enforcement of the provisions of the various acts.

In 1869 a deputy, Dr. Roser, advocated factory inspection on the plan then in force in England and France. From that time until 1883, when the factory inspection department was established, the agitation for such an institution was strenuously continued and the Government urged to establish and organize factory inspection.

¹ Historical data from A. Lukinas: *Die Gewerbe-Inspektion in Österreich*. Vienna, 1908.

SCOPE OF THE INDUSTRIAL CODE.

The present Industrial Code of Austria is based on the text issued by the ministers of commerce and interior on August 16, 1907, and consists in the consolidation of various previous acts, as follows: December, 20, 1859; March 15, 1883; March 8, 1885; June 16, 1895; July 4, 1896; November 27, 1896; February 23, 1897; February 25, 1902; July 22, 1902; July 18, 1905; February 5, 1907.

Besides these laws there are a number of decrees and orders embraced in the second part of the Industrial Code.

The Industrial Code of Austria is divided into 10 chapters and 152 articles.

Chapter I gives the main provisions of the division of trades into the three classes—(a) free trades, (b) handicraft trades, and (c) licensed trades.

Handicraft trades are those for which a certain apprenticeship and experience is necessary.

The code mentions 54 such trades or groups of trades to which belong various handicrafts from glaziers, blacksmiths, etc., to bakers, soap makers, painters, etc. Besides these a certain number of handicrafts are included in this group by ministerial orders. The character of the handicrafts may vary in different Provinces and Government districts. Commercial trades and factory establishments are excluded from handicraft trades, while the home industry is regulated by other laws.

The law does not give a definition of a factory establishment. By factory or factory establishments (*fabrik, fabrikmassig*) are usually meant only such establishments as carry on an extensive production or refining of industrial products; and where not less than 20 workers are employed, where special machinery run by motor power is found, and in which a certain division of labor is prevalent. This definition is, however, subject to judicial interpretation, and there have been more than 50 court decisions as to the designation of various plants by the term "factory."

Under the term "licensed trades" are included such as require, in consideration of public health, a special authorization.

"Free trades" are those which are not included in the former two classes.

Chapter II deals with the conditions of independent industrial production. These conditions differ according to the class of trade.

Chapter III treats of the need of authorization for certain specially dangerous industries. It also deals with the various procedures for applying for and granting of authorization for certain trades.

Chapter IV deals with the extent and utilization of the rights to the conduct of industry.

Chapter V treats of markets and their control.

Chapter VII deals with trade associations.

Chapter VIII gives provisions for violations and penalties for same.

Chapter IX deals with special administrative procedures.

Chapter X provides for the various industrial authorizations and instances.

The most important chapter is the sixth, which deals with protection of industrial employees (*Hilfsarbeiter*). Practically all the provisions for child and female labor are found in this chapter, also the details for the conduct of industries in relation to their personnel, and the main provisions as to the sanitary and health conditions of the establishments.

PROVISIONS OF THE INDUSTRIAL CODE FOR THE PROTECTION OF WOMEN AND CHILDREN.

The provisions regulating hours of employment, the limitation of work, and other conditions for the work of women and children are contained in articles 93, 94, 95, and 96 of this chapter. Article 94 consists of the following provisions:

- (1) The prohibition of children from working before the completion of 12 years of age.
- (2) Young persons between 12 and 14 years of age may work in industries if their health is not injured by the work, and it does not prevent their bodily development or interfere with the legal school requirements.
- (3) The duration of work of these young employees must not exceed eight hours.

The ministers of commerce and interior may interpret and amplify these provisions, also designate those industries in which young persons and women may not work at all or only under certain conditions.

- (4) Women must not be allowed to work within four weeks after parturition.

Article 95 deals with night work, prohibiting the regular industrial employment of young persons under 16 years of age between the hours of 8 p. m. and 5 a. m. This section is also subject to ministerial orders and regulations, and a number of such have been issued relating to silk factories, hotels and taverns, baking industry, etc.

Article 96 deals with—

- (1) The keeping of certain registers for young employees.
- (2) The limitation of the daily hours of labor of all employees in factory establishments to not more than 11 hours within 24 hours.

The ministers are allowed to make exceptions to this rule in case of need. Overtime is to be properly remunerated. There are quite a number of exceptions or exemptions to this part of the article.

A section of this article, designated as 96b, provides also that—

- (a) Children may not be employed regularly in factory establishments before reaching 14 years of age.

(b) Young persons between 14 and 16 years of age may be employed only at light work which is not injurious to health, or does not interfere with their physical development.

(c) Women are included in the same provisions as young persons as far as their exclusion from night work in factory plants is concerned.

The ministers are given power to make certain exceptions as to night work for young persons between 14 and 16 years of age and for women; and in the exercise of this power special rulings have been made as to ironworks, cleaning of feathers for pillows, glassworks, machine lace manufacture, fez manufacture, paper, sugar, preserves, and enameled ware and textile manufacture.¹

PROVISIONS OF THE INDUSTRIAL CODE CONCERNING INDUSTRIAL CONDITIONS.

The provisions for prevention of accidents, regulation of dangerous trades, and all sanitary regulations in factories and workshops are based upon article 74 in Chapter VI. This article reads as follows:²

1. Every employer shall be obligated to provide and maintain at his own expense such sanitary arrangements and other appliances as the nature of the industry or working place requires for the protection of the lives and health of the employees.

2. Industrial employers must in particular see to it that machines, appliances, and their parts are so fenced in or protected that workmen, so long as they observe the required precautions in performing their work, are not easily liable to injury.

3. It is also the duty of industrial employers to see that during working hours the workrooms shall be kept as well lighted, clean, and free from dust as possible, according to the nature of the industry, and that if necessary the workrooms shall be sufficiently illuminated by artificial light, and that they shall be ventilated according to the number of workers and illuminating appliances and counteracting all possible influence of injurious gases, and further that operation shall be so arranged that the health of the employees is protected as much as possible.

4. Industrial employers who furnish housing accommodations to their employees must take care that only such rooms are used for this purpose as are not likely to injure the physical safety, health, and morals of the employees, and in which a sufficient quantity of pure water for drinking and other purposes is available, as far as local conditions permit.

5. Finally, employers who employ women and girls and young persons under 18 years of age are obligated to properly safeguard their morals, as required by age and sex.

The above provisions of article 74 are the basis of numerous rules, regulations, and ministerial orders, as well as of court decisions which have from time to time been issued to elucidate, amplify, and interpret

¹ For further provisions as to child labor, see Child Labor Legislation in Europe, in Bulletin of the U. S. Bureau of Labor, No. 89, July, 1910.

² The provisions quoted here are from the law of Apr. 21, 1913, relating to the change and amplification of article 74 in the Industrial Code—Reichsgesetzblatt XXXVI, May 1, 1913.

article 74. All the sanitary standards, as well as the provisions for prevention of accidents which have been issued from time to time, and some of which will be alluded to later, are also based upon provisions of this chapter.

INDUSTRIES SPECIALLY REGULATED AND THOSE REQUIRING SPECIAL AUTHORIZATION.

Application must be made for authorization of the establishment and maintenance of all such industrial plants in which there are to be used steam boilers, machines run by steam, electricity, or water power, or such as may injuriously influence the health of workers, or are insecure or may injure the neighborhood through bad odors or extraordinary noises. Such industrial establishments may not be erected before receiving an authorization. A large number of industries and groups of industries (22 groups in the last edition of the code) have been included under these provisions. Besides these there are 53 other industries which are included in the provision for authorization by requirements of article 27.

The application for authorization is made to the industrial authorities of the first instance and is by them referred to a special commission which carefully examines the plans and specifications, and passes upon all the points in connection with the special industrial establishment to be established. The commission consists of certain technically trained persons—the district architect, district physician, district industrial inspector, and also such special experts as may be asked by these to collaborate and participate in the work of examination of the application for authorization.

The proceedings for the examination of the applications for authorization are regulated in detail by a ministerial order of December 14, 1906. Provision is also made in these regulations for appeals against the decision of one or more of the commission to the authorities of the second and third industrial instances.

INDUSTRIAL AUTHORITIES.

The administration of the Industrial Code is imposed upon the political administrative authorities of the first instance, designated also as the industrial authorities of the first instance. These consist of the political administrative and police authorities in each government district. It is before them that the applications must be made for authorization for all specially regulated or concessioned trades. They also have the supervision over the industrial inspector, the right of instituting proceedings for violations of the Industrial Code and for imposing penalties for such violations. In Austria, it is to be observed, the industrial inspectors of a district are under the immediate supervision of the industrial authorities of the first instance of that district.

The provincial authorities constitute the industrial authorities of the second instance. It is to these authorities that certain specially regulated industries must apply for authorization, and to them also go the protests and appeals from the decisions of the industrial authorities of the first instance.

The Ministry of Commerce constitutes the authority of the highest instance in industrial matters, where appeals are finally adjudicated and which is at the head of the administration of the Industrial Code and in charge of the Factory Inspection Institution.

PENALTIES, FINES, ETC.

According to article 131, violations of the provisions of the Industrial Code may lead to the following penalties: (a) Warning, (b) fine up to 1,000 crowns (\$203), (c) imprisonment up to three months, (d) temporary or permanent withdrawal of the right to employ apprentices and young persons, and (e) the temporary or permanent withdrawal of the right of exercising an industry.

The next eight articles (132-139) give more definite provisions as to the extent of the penalties for violations of the Industrial Code and also details of industrial rights in the case of violations of the code.

ADMINISTRATIVE PROVISIONS AS TO FACTORY INSPECTION.

Factory inspection is based upon the law of June 17, 1883, upon subsequent laws, as well as upon ministerial orders, rules, and regulations issued since that time.

All industrial establishments of whatever nature, except mines and quarries, are under the supervision of industrial inspectors. The Minister of Commerce with the consent of the Minister of Interior appoints the central industrial inspector and all other inspectors. The Minister of Commerce may limit the activity of the inspectors either as to industries or to districts or to both. Thus, according to ministerial orders, a special industrial inspector has been appointed for the shipping industry with an office in Vienna. There was also a special industrial inspector appointed in 1892 in charge of the public transportation system of Vienna. In 1899 a special industrial inspector was appointed for the Austrian State railroads. In 1901 a special inspector was appointed for canals and waterways.

The duties of the industrial inspectors are defined by article 5 of the law of June 17, 1883, as follows:

The supervision of the enforcement of the provisions of the Industrial Code:

(1) As to measures to be taken and appliances to be provided by the employer to protect the lives and health of the workers in the workrooms as well as in dwellings provided by the employer (upon this provision are based the various ministerial decrees and orders as to

prevention of accidents and sanitary regulations of industrial establishments);

(2) As to the employment of workers, daily hours of labor, and periodical rest periods;

(3) As to the keeping of registers, posting of shop rules, wage payments, and workmen's pass books; and

(4) As to the technical instruction of juvenile workers.

The functions of the industrial inspectors are defined by article 6 to be "a special supervising, investigating and advising organ assisting the industrial authorities"; they may also be called upon to participate in the investigation and report upon the applications for authorization of establishments in relation to those conditions which would influence the lives and health of the workers.

Article 12 of the law contains general instructions as to the attitude to be observed by the inspectors in their activities, directing that in the performance of their duties they must make it an object, by exercising their control in a kindly manner, to insure the beneficial operation of the law with regard to the employees, tactfully to aid the owners of industrial establishments in the fulfillment of the legal requirements, to mediate between the employers and their employees and attempt to adjust their differences on an equitable basis, and, generally, to gain the confidence of the employers as well as of the employees, so as to place themselves in a position where they can assist in maintaining amicable relations between the two.

The inspectors have the right of entry at any time by day; also by night if work is being done. The owner or his representative has the right to accompany the inspector during his inspection. The inspectors have no right to inspect the books and business records or correspondence of the employers, but have the power to question any person who is participating in the industry, alone or in the presence of witnesses as to matters coming within his sphere of activity.

Should the inspector find any violations of the Industrial Code, he must request the owner of the establishment to immediately discontinue the illegal conditions and, in case of refusal of the owner, immediately to give information to the proper industrial authorities. These are obliged by article 10 of the law to immediately notify the inspector as to their action on the information of the inspector, who has a right to appeal against the decision of the industrial authorities of the first and second instance.

The industrial authorities have the right at the recommendation of the industrial inspector to appoint experts, physicians, chemists, and others to be paid by the employer, if the conditions in his establishment are proved to be dangerous to health. According to article 12, the industrial inspectors should in the performance of their func-

tions endeavor to insure to the worker the benefits of the Industrial Code by their sympathetic controlling activity and at the same time to tactfully act in their expert capacity, and to gain the confidence of the employers as well as the employees through their decisions based upon expert knowledge and extensive experience. Inspectors must not divulge or use for their own advantage any industrial secrets gained by them in their inspection under penalty of imprisonment from three months to two years and in addition are liable to disciplinary and criminal procedure for such an offense. Inspectors are not allowed to conduct any industrial establishments or to have any interest in such. Inspectors must not receive remuneration of any kind from employers or employees, and they are ordered to refuse all offers of hospitality.

EXCEPTIONS AND EXEMPTIONS.

The Minister of Commerce, conjointly with the Minister of Interior, is authorized to reduce after consultation with chambers of commerce and industry, the time of the work pauses, to sanction Sunday work and night work of young persons employed in industrial establishments, to make special regulations as to the hours of labor in certain industries carried on in factories, to grant exceptions as to night work for women and young persons in factories, and to make certain restrictions as to the employment of young persons in dangerous trades. The industrial authorities have also the right to grant exemptions from the regulations relating to overtime and Sunday work and may consult the industrial inspector of their district before granting such exemptions.

ORGANIZATION OF INDUSTRIAL INSPECTION.

The Ministry of Commerce is the real administrative body enforcing the Industrial Code. It nominates and appoints inspectors, it interprets and amplifies the law and Industrial Code, it receives the reports from the central inspector, it grants leaves of absence to the higher industrial inspectors, it determines the inspection districts, it designates the inspectors for each district, and has the whole control of the industrial inspection service.

The political authorities, provincial or district, which are the industrial authorities of the second and first instances, have jurisdiction over the inspectorial service by virtue of their political power derived from the State constitution, and they are, of course, subject to the Minister of Commerce and such other ministers as have charge of the subject of jurisdiction. The central industrial inspector is under the immediate direction of the Minister of Commerce; the chief inspectors of districts are under the immediate direction of the provincial authorities; local inspectors are under the immediate direction of the

local political authorities. As has already been noted, the inspectors have certain rights of appeal against the decisions of authorities of the lower instances, but the court of final appeal is the Minister of Commerce.

While the general administration of the labor laws in the Industrial Code is in the hands of the Minister of Commerce and the political authorities, the technical part of the work is done by the industrial inspection service, which, unlike that in Germany, is highly centralized.

CENTRAL INDUSTRIAL INSPECTOR.

At the head of the inspection service is the central industrial inspector, who is the industrial technical representative of the inspection service in the Ministry of Commerce; he has charge of all the industrial inspection service, and supervises and controls the whole force. The central industrial inspector receives reports from all the district inspectors, approves these reports, makes propositions relating to industrial service to the Minister of Commerce, advises the minister in cases of appeal from the authorities of lower industrial instances, supervises the work of the chief inspectors and their assistants, nominates the candidates for appointment, appoints the commission for examination of candidates, and is the real head of the whole industrial inspection service.

The office of the central industrial inspector is at present held by Court Councilor Victor von Wuerth, who has been in the industrial inspection department since 1889, and has his office in a Government building in Vienna.

The present industrial inspection service of Austria consists of 126 persons.

BUDGET.

The budget for the expenses of the industrial inspection service were, according to the central industrial inspector (von Wuerth), as follows:

	Crowns.	
Salaries.....	623,483	(\$126,567.05)
Servants.....	4,050	(822.15)
Wages of other employees.....	50,000	(10,150.00)
Clerical help.....	10,000	(2,030.00)
Traveling expenses.....	271,220	(55,057.66)
Rents.....	41,890	(8,503.67)
Expenses of offices.....	61,000	(12,383.00)
Printing.....	12,000	(2,436.00)
Telephones and telegrams.....	100	(20.30)
Mailing of printing matter.....	300	(60.90)
Miscellaneous.....	120	(24.36)
Total.....	1,074,163	(218,055.09)

CLASSIFICATION AND GRADING.

There are several grades and classes of inspectors, each differing in grade of service as well as in political rank, and receiving salaries according to the grade and rank. The following table shows the grade, the number in each grade, and the bureaucratic rank of inspectors.

	Number.	Bureau- cratic rank.	Equal to rank of—
1. Central industrial inspector..	1	V	General.
2. Chief industrial inspector.....	1	V	General. ¹
3. Chief industrial inspectors....	13	VI	Colonel.
4. Industrial inspectors of first class.....	3	VI	Colonel.
5. Industrial inspectors of first class.....	24	VII	Lieutenant colonel.
6. Industrial inspectors of second class.....	23	VIII	Mayor.
7. Kommissars of first grade.....	5	VIII	Captain.
8. Consulting sanitary physician	1	VIII	
9. Kommissars of second grade..	48	IX	Captain.
10. Female assistant.....	1	X	
11. Working assistants.....	2	X	
12. Female assistants.....	4	XI	
	126		

SALARIES.

The salaries of inspectors are rated according to their grade and length of service. Inspectors are given stated salaries with yearly increase. A certain fixed sum is given to them for their traveling expenses, this sum differing according to the districts and to the amount of traveling needed. Besides salaries and traveling expenses a certain addition (*zulage*) is given which differs according to the grade of service.

The following is a table of the salaries (converted into terms of United States money), furnished by the central industrial inspector (von Wuerth).

SALARIES, ETC., OF INSPECTION OFFICERS, AUSTRIA, 1912.

	Salary.	Addition.	Traveling.	Total.
Central industrial inspector....	\$2,436.00	\$446.60	\$609.00	\$3,491.60
Chief Inspector Navratil.....	2,030.00	357.28	812.00	3,199.28
Chief Inspector Leemhard.....	1,786.40	373.52	730.80	2,890.72
Chief Inspector Suda.....	1,461.60	298.81	730.80	2,491.21
Chief Inspector Jares.....	1,461.60	298.81	365.40	2,125.81
Chief Inspector Vybirac.....	1,299.20	298.81	730.80	2,328.81
Inspectors of first class.....	\$974.40-1,096.20	\$196.10-326.83	\$60.90-121.80	\$1,585.43-1,966.66
Inspectors of second class.....	730.80	168.08-280.14	243.60-487.20	1,198.51-1,442.11
Kommissars.....	568.40-649.60	146.10-243.60	203.00-406.00	852.60-1,299.20
Female assistants, first grade...	487.20	194.88	182.70	864.78
Female assistants, second grade..	324.80	116.93	162.40	604.12
Working assistants.....	324.80	146.18	162.40	633.36
Sanitary consultant.....	730.80	28.01	.....	1,010.94

¹ This position is occupied by Chief Inspector Navratil, appointed in 1884. He has the rank next to the central industrial inspector, also the highest salary, and has charge of the district of Lemberg.

Inspectors are entitled to pensions according to the pension system of Austrian State officials. According to this system officials contribute each year 4.3 per cent of their ratable annual earnings, i. e., of their fixed salaries and a specified part of their salary increases based on rank and length of service. After 10 years of service the pension consists of 40 per cent of the ratable annual earnings and thereafter the pension is increased every year 2.4 per cent of the ratable annual earnings until after 35 years of service it amounts to the full annual rate last received.

Inspectors are entitled to vacations, but they must apply for a leave of absence. All grades below the district inspectors must apply to the local industrial authorities, and all grades of inspectors above that to the Minister of Commerce. Three weeks' vacation is granted to the kommissars, four weeks to the other inspectors, and six weeks to the higher class of inspectors.

Industrial inspectors are entitled to wear special uniforms, according to their rank. Uniforms are worn only at official functions. Inspectors in large cities do not have as many occasions to wear the uniforms as inspectors in rural districts, where they have often to be present at state functions.

TERRITORIAL AND FUNCTIONAL INSPECTORS.

There are a number of inspectors with special functions; the rest of the inspectors are divided into 42 territorial districts. The special functional industrial inspectors are four, as follows:

1. Industrial inspector for construction work in Vienna. This inspector is assisted by one kommissar and two assistant inspectors coming from the laboring class with the title of "Bauinspizient."

2. Industrial inspector for public traffic and transportation in Vienna.

3. Industrial inspector for construction of waterways and canals, with an office in Prague, occupied by Marine Engineer von Lindenkron.

4. Industrial inspector for the shipping industry in interstate waters, with an office in Vienna, occupied by marine engineer, Court Councilor Anton Schromm.

The central industrial inspector has his office in the Government building in Vienna and is assisted by four inspectors, one sanitary consultant, one female assistant inspector and a clerical staff.

The whole country outside of Hungary, which has its own district factory inspection organization, is divided into 42 districts, each presided over by an inspector, six of them having the title of chief inspector. Each district inspector has assigned to him one or more assistants, usually of the several grades—an industrial inspector of the first and second class, a kommissar or a female assistant.

The offices of the district inspectors are sometimes in Government buildings, but mostly they are in hired quarters. The branch offices

at Vienna pay a rental of 1,500 to 2,500 kronen a year (\$304.50 to \$507.50) and consist of three or four rooms. Some of the offices have typewriters and women clerks and are also provided with telephones. As a rule, the clerical force is very small, partly because of the insufficient appropriations, and partly because of the fear of divulging secrets of the inspectors. The penalty for divulging secrets of inspection is very severe—up to two years imprisonment—and the inspectors, being responsible for their clerks, do not feel like having these clerks know too many details of the work.

The assistant inspectors who are assigned to assist the district inspectors in their work are under the immediate supervision of the district inspectors and bear the title of "kommissars." They are responsible for their work to the district inspectors.

There are only five women inspectors in the country. They are of a lower rank than the male inspectors, and they are mostly assigned to workshops and factories where women and children are employed. Of the five women inspectors only one is in Vienna. She is specially detailed to work in women's wear, millinery, and kindred factories.

In Austria as well as in other countries there is great pressure on the part of labor representatives in Parliament and outside for the appointment of inspectors coming from the working class. So far, however, only two such appointments have been made. These two inspectors are in rank X and have previously been employed as foremen in construction work.

There are no special official rules or regulations for the selection, examination, and appointment of inspectors as there are in Prussia, in France, or in England. The selection of the inspectors is based upon article 15 of the law of 1883, creating the inspectorial department, which reads as follows:

That only such persons should be appointed as inspectors who possess the necessary grade of technical education and who are acquainted with the languages which are spoken in the districts to which they are assigned.

Candidates for inspectorship make applications to the central industrial inspector and only such of these are nominated as are deemed fit. While there are no definite instructions, it is usual to appoint as inspectors only those who have the following qualifications:

1. A technical education in a technical school.
2. At least five years of practical work in the factory.
3. A knowledge of the languages spoken in the districts to which they are to be assigned.

This last provision is a matter of importance because of the many languages spoken in the various Provinces of Austria and the knowledge of some of which is absolutely necessary to the inspector.

Candidates who are nominated for appointment must undergo an oral examination before a commission consisting of a chief inspector and several other inspectors, as designated by the central industrial inspector, with the consent of the Minister of Commerce. No more than four applicants are examined at one time, and the examination lasts from six to seven hours. The candidate is examined as to his knowledge of (a) labor laws, (b) accident prevention, (c) industrial hygiene, and (d) mechanics and physics.

The successful candidates are then appointed and serve a year on probationary appointment. They remain as probationary inspectors until a vacancy occurs, when they are appointed as Kommissars of the second grade. Once inspectors are appointed, they have practically life positions.

The majority of inspectors are technically trained men—mechanical or electrical engineers—many of them with university diplomas, and quite a number of them with military rank. One of the five district inspectors of Vienna is a chemist, another a marine engineer, another a doctor of philosophy, a fourth a technical adviser of the Industrial Museum of Vienna. Four or five of the Kommissars are doctors of technical engineering. Among the other inspectors there are also a large number of officers in the reserve of the army and graduates of technical colleges.

There are no medical factory inspectors except the sanitary consultant referred to above. He was appointed by the Minister of Commerce; he has no powers except advisory, and has no laboratory. He was formerly a lecturer at the University of Innsbruck.

WORK OF INSPECTORS.

It has already been stated that the scope of the work of Austrian industrial inspectors is very broad, and embraces not only the inspection of industrial establishments of all kinds, but also includes a number of other activities, not as a rule exercised by the inspectors in other countries. Among such functions may be considered the following:

1. Inspection of all industrial establishments.
2. Inspection of the housing of working people where such housing is provided by the employers.
3. Commission work on applications for authorization of new establishments.
4. Investigation of accidents.
5. Inspection of state tobacco factories.
6. Inspection of private powder works.
7. Inspection of industries in prisons.
8. Inspection of machine shops in technical schools.
9. Inspection of building construction, interstate shipping, canals and waterways, public transportation, and State railroads.

10. Intervention in strikes; approval of exceptions tendered by industrial authorities for overtime; approval of exceptions granted for Sunday work; acting as witnesses in industrial and other courts, and many other similar functions.

The Empire of Austria has an area of over 115,000 square miles, with an industrial population of 4,049,320 in 1902, and a total of over 1,000,000 establishments.

Although there are more than 1,000,000 industrial establishments in the country, there were 157,444 of these establishments subject to inspection in 1912. Of these (i. e., having not less than 20 persons at work, with large machinery, motor power, division of labor, etc.) only 16,929 were designated as factories; the remaining 140,515 were establishments which are subject to accident insurance and therefore subject to inspection.

INSPECTIONS MADE.

With over 1,000,000 industrial establishments of all kinds, and with over 157,000 industrial establishments subject to inspection, the inspectors made only 42,273 inspections in 1912, and inspected only 38,777 establishments. In other words, the inspectors covered about 25 per cent of the large establishments, and if the total number of 1,000,000 establishments be included, the number of inspected establishments is only about 3.9 per cent.

Number of industrial establishments inspected.....	38,777
Number of factories inspected.....	12,166
Number of persons in inspected establishments.....	1,340,354
Male persons under 14 years working in inspected establishments.....	597
Female persons under 14 years working in inspected establishments.....	365
Male persons between 14 and 16 years working in inspected establishments.....	54,048
Female persons between 14 and 16 years working in inspected establishments.....	32,042
Male adults working in inspected establishments.....	890,899
Female adults working in inspected establishments.....	362,403
Number of establishments inspected once.....	36,090
Number of establishments inspected twice.....	2,203
Number of establishments inspected three or more times.....	484
Number of night inspections made.....	249
Number of Sunday inspections made.....	393

It will be seen from the above data that 71.9 per cent of all the factories were inspected, showing that the greatest attention has been paid by inspectors to these establishments. Of the 140,515 establishments under the accident insurance laws, there were only 21.6 per cent inspected.

OTHER WORK OF INSPECTORS.

A very important part of the work of inspectors, and one taking considerable time, is the work of participating in commissions—passing on applications for authorization of new and old establishments in special and dangerous trades. There were 19,013 such applications received in 1912, in 11,204 of which the inspectors participated. The work of participating in one of the commissions takes very much more time than ordinary inspections, sometimes a day or two, even more, being spent in this work.

The inspectors reported 659 strikes, 34 lockouts, and 96 other labor conflicts. On request of the industrial authorities or of the parties affected the inspectors intervened in 114 strikes, 11 lockouts, and 35 other labor conflicts.

In addition to the numerous activities given above, the inspectors also took part in a number of conferences, investigations, meetings, acted as witnesses in courts, etc.

The inspectors made 13,292 official journeys.

The amount of clerical work done by the inspectors during a year is enormous. The report states that in 1912 not less than 214,971 official papers were acted upon and disposed of.

PROSECUTIONS, VIOLATIONS, ETC

The inspectors sent 7,230 formal notices to owners of establishments as to discontinuance of violations of the law and remedying of objectionable conditions existing in their establishments. In 1,233 instances the inspectors had to notify the industrial authorities that their formal notices to owners of establishments had been disregarded. In 366 of these instances the authorities ordered the owners to comply with the demands of the inspectors, in 28 instances the owners were reprimanded, in 270 instances fines amounting to 12,031 crowns (\$2,442.29) were imposed, in 22 instances the delinquent establishments were ordered closed, in 63 instances the demands of the inspectors had meanwhile been complied with, and in 8 instances the industrial authorities found no grounds for official procedure. The remainder of the notices of the inspectors to the industrial authorities were not disposed of during the year 1912.

In only eight cases were there appeals made by the industrial inspectors against the decision of the industrial authorities of the first instance. In only three cases were appeals made to the industrial authorities of the third instance.

In 10,994 cases interviews were had with employers and employees, of which 5,670 were with employers, and 5,324 with workers. In these interviews are not included the telephonic communications, etc.

WORK OF SPECIAL INSPECTORS.

The four special inspectors made the following number of inspections:

Inspector of traffic and transportation.....	Not reported.
Inspector of construction.....	2, 129
Inspector of interstate shipping.....	324
Inspector of canals, etc.....	30

ACCIDENTS.

Inspectors received 10,023 invitations to participate in accident investigations. They could participate in only 732 cases.

There were reported in 1912 92,317 accidents, of which 704, or 0.8 per cent, were fatal. The report states that the number of actual accidents was undoubtedly much greater than the number which has been reported to the inspectors. It seems that the reporting of accidents by the employers is not as yet properly done. There were in 1912 4,984 more accidents reported than in 1911, with a decrease of 12 fatal accidents. Of the accidents reported, the largest number, 22.9 per cent, has been reported from the metal industry; 18.6 per cent from manufacture of machines, apparatus, etc.; 17.7 per cent in building construction; 7.1 per cent in the food industry; 3.1 per cent in the chemical industry; 6.2 per cent in the wood industry.

OCCUPATIONAL DISEASES.¹

A number of ministerial decrees issued in the years 1908 to 1911 and providing protective measures for workmen exposed to occupational diseases charged the industrial inspectors with the enforcement of these protective provisions. Of these decrees the following should be especially mentioned: For the protection of house painters, varnishers, and decorators, of April 15, 1908; for the manufacture of paper from rags, wood pulp, etc., of September 25, 1911; for the operation of sugar factories, of August 22, 1911; and for the operation of printing, lithographing, and type-founding works, of August 23, 1911.

The enforcement of these protective regulations is one of the most important tasks of the industrial inspectors, and their annual report gives a detailed account of their activities in this respect. The inspectors generally find that these protective provisions are more strictly observed in large establishments than in small ones. They report that nonobservance of the protective provisions as to the use of white lead can very seldom be detected in small painting and decorating establishments, because white lead is used only from time to time and then only for a short period. The inspectors claim also that the law as to the use of white lead is not sufficiently comprehensive, and quote as an example that the owner of a chemical factory in which lead glazes are produced refused to provide his

¹ This section was compiled in the United States Bureau of Labor Statistics from official reports.

workers with washable work clothes and refused to discontinue the employment of women in lead work because the law is applicable only to persons employed in house painting, decorating, or varnishing. The inspector of Innsbruck remarks that when white lead is found in establishments the owners as a rule claim that it is old stock and that they no longer use any materials containing lead. As the decree is applicable only to establishments "using" lead compounds, the enforcement of the decree becomes very difficult.

Great difficulties were encountered in the enforcement of the protective provisions for workers in printing establishments. The employees object in many instances to the purchase at their own expense of work clothes and in some establishments have also refused to wear such clothes when furnished by the employer. Notwithstanding that notice had been posted and leaflets distributed, compositors in many establishments were found eating and smoking while at work, and when reprimanded called the protective provisions an unwarranted restriction of their personal liberty. The industrial inspector of Trent remarks that notwithstanding their intelligence, compositors as a rule know very little of the causes of plumbism, do not pay any attention at all to personal hygiene, and consider plumbism as an unavoidable occupational disease.

As noteworthy with respect to the hygienic conditions of brewery workers should be mentioned the following observation of the inspector of Pilsen: On the revision of the sickness statistics of the establishment sick funds of several large breweries it was found that tuberculosis is much more frequent among the workmen of these establishments than should be expected. This phenomenon was ascribed to the excessive consumption of alcohol by the employees, brought about by the furnishing of large quantities of free beer to them by the breweries. It was suggested to the breweries that at least a part of the allowance of free beer should be converted into a money allowance.

Lead poisoning.

The inspectorate of Klagenfurt reported 14 serious cases of lead poisoning of workmen engaged in construction of a railroad bridge. The rubbing off of badly mixed red lead paints and the scaling off and pulverization of the paint when the parts of the bridge were riveted are given as causes.

Nearly all inspectors reported cases of lead poisoning in the house painting, varnishing, and decorating trades, and three of these cases in the varnishing shop of a car factory were fatal. Many are the complaints of inspectors that workmen using white lead refuse to stop smoking while at work and that employers use all kinds of subterfuges to evade enforcement of the protective regulations. The inspector of Innsbruck mentions the following as an example of the

difficulties found in enforcing the protective regulations: During the inspection of a painter's shop railroad employees delivered to the owner of the shop a barrel, the contents of which were designated on the waybill as white lead. The owner had previously affirmed that he did not use white lead in his shop. On being confronted with the above evidence he declared to the inspector that he had not ordered any white lead and that the shipper of the barrel must have made a mistake.

On the occasion of a provincial conference of the guilds of house painters, decorators, and other related trades the inspector of Linz gave a lecture on the protective provisions of the ministerial decree relating to the use of white lead, during which he enlarged on the results of sickness statistics and on the causes of lead poisoning.

As to poisoning in ceramic industries, there were cases reported by the inspectors in Linz (1 glost placer in an earthenware factory), in Bregenz (2 workmen in a pottery), in Reichenberg (1 fritter in a glass factory), in Teplitz (1 workman in a fritting room, 2 female aerographers, and 1 glazer in a majolica factory), and in the second district of Brunn (2 workmen in a tile stove factory). The general report says, however, that the extent of the danger of lead poisoning in ceramic industries should not be judged by these few cases which came to the knowledge of inspectors. The experiments made in several establishments to reduce the lead content of glazes were, according to the reports of the inspector in the second district of Brunn, accompanied by success in the earthenware factories of Znaim. The object in view was attained there through additions of kaolin.

Fifteen cases of lead poisoning in color factories were reported. In two white-lead factories in the district of Klazenfurt, in which only 90 workers were employed, were reported 9 mild cases, 4 cases of lead colic, and 1 of lead paralysis. In a red lead factory in the same district, which has excellent devices for the prevention of dust, there was only 1 case of lead colic.

A considerable number of cases of lead poisoning were found in metal goods factories. The inspector of the first district of Prague reports that in such an establishment, as a consequence of insufficient hygienic equipment, of a total of 22 workers in February 6 were found with blue lines on the gums, and in July 7, while in November, when only 15 workers were employed, 5 showed the above symptoms of lead poisoning.

Reports were also made by inspectors as to cases of lead poisoning found in factories making storage batteries, mostly due to careless manipulation.

The inspectors report that hygienic conditions in file-cutting establishments leave much to be desired. In an establishment in the third district of Prague the owner was found suffering from lead colic

and his son had a blue line on the gums as a consequence of nonobservance of the protective regulations. Further cases of plumbism in such establishments were reported by the inspectors of Pardubitz and Teplitz, one case in Pardubitz being fatal. The inspectors assert that the danger of lead poisoning in many file-cutting establishments can be averted if the metallic lead "bed" upon which the file is being cut is replaced by a bed of some other metal. According to the report of the inspector in Sankt Polten a file-cutting establishment in his district has entirely discontinued the metallic lead beds in the shops where file cutting is done by machinery and replaced them by beds consisting of an alloy of tin and zinc, using lead beds only for file cutting by hand. In this establishment the workmen are examined once a month by a physician and a register is kept as to these examinations. The inspector reports, however, that although all precautionary measures were observed by the employers there were nevertheless two cases of lead poisoning ascribed to refusal of the workers to conform to the protective regulations.

The inspectorate of the first district of Vienna reports that in an establishment for the remelting of lead and tin, cases of lead poisoning occurred regularly among the furnace crew. The material intended for remelting was sorted without moistening. The work at the furnace was performed while the top was open, and exhaust drafts were entirely missing. The establishment was ordered to wet the charging material and to provide a suitable closed top for the furnace and exhaust drafts. In a lead smelter in the inspection district of Klagenfurt, employing about 100 workers, in 1912 there were observed 14 cases of lead colic and 23 cases of lead poisoning of a less serious character. In the month of January alone 10 cases of lead colic occurred, but all efforts to find some explanation for this frequency of cases were fruitless. In a shot and litharge factory connected with the above smelter and employing 18 workmen a workman who had worked 30 years in lead smelters became afflicted with lead paralysis. In a lead smelter in the district of Pilsen two workmen were attacked by acute lead poisoning, and in a lead-pipe factory in the district of Teplitz three workmen showed symptoms of lead poisoning.

Numerous cases of lead poisoning were brought to the attention of the industrial inspectors in pursuance of the ministerial decree of July 17, 1912, which ordered all public health officers (*Amtsärzte*) to report to the industrial inspectors each case of lead poisoning found by them in printing, lithographing, and type-founding establishments. In the inspection district of Trent the industrial inspector made inspections accompanied by the provincial and by the district health inspector, and of 30 compositors examined 4 showed symptoms of plumbism. The provincial government of Bukowina investigated

all printing establishments in the provincial capital of Czernowitz, and the local industrial inspector participated in this investigation, in the course of which more or less serious symptoms of plumbism were found in 26 workers, and 1 of these workers was found afflicted with wrist-drop. A number of other inspectorates reported cases of plumbism, of which we shall mention here only the report of the second district of Brunn with 8 cases of plumbism (2 compositors, 4 apprentice compositors, 1 pressman, 1 storeroom worker). In some instances workmen who refused to stop smoking during working hours were ordered discharged by the inspectors.

Mercury poisoning.

Cases of mercury poisoning were reported by only two inspection districts, Trent and Pardubitz. In an incandescent lamp factory in the first-named district a workman employed in attending a mercury rotary pump suffered from inflammation of the gums. The second case (loosening and bleeding of the gums) was that of a workman in a cyanidation plant who handled mercuric chloride. An extensive investigation was made of the latter case, which occurred in spite of the fact that twice each month the workmen underwent a medical examination.

Arsenic poisoning.

The inspectorate of the district of Reichenberg repeatedly observed cases of arsenic poisoning in the brazier's trade. The local industrial authorities have, on the request and with the participation of the industrial inspectorate, issued a leaflet as to the causes of arsenic poisonings, their prevention, and as to first aid in such cases. This leaflet, after being approved by the provincial authorities, was distributed through the guilds in the individual establishments.

Noxious gases.

CARBON MONOXIDE.—Several inspectorates reported poisonings and in one instance death through inhalation of carbon monoxide.

SULPHUROUS ACID.—The inspectorate at Klagenfurt reports that in the lixiviation department of a sulphite cellulose factory a workman became sick twice as a consequence of inhalation of sulphurous acid. Accidents in the operation of the department were the cause in both cases.

MURIATIC ACID.—The dippers of an enameled ware factory became sick with inflammation of the mucous membrane of the eye. The inspector ordered improvement of the exhaust apparatus above the dipping tanks.

CHLORINE GAS.—The inspectorate at Klagenfurt reported three cases of sickness caused by inhalation of chlorine gas in a chloride of lime factory.

HYDROFLUORIC ACID GAS.—In a wood-preserving department of a sawmill, district of Reichenberg, a workman contracted, through inhalation of hydrofluoric acid gas, bronchial catarrh of a serious character and lasting for a long period.

Diseases of the skin and mucous membrane.

Numerous reports of the inspectors deal with skin diseases caused by various occupations. A form of skin disease encountered every year by the inspectors is the so-called "polisher's eczema." A large number of cases of this disease occurred in 1912 in the first district of Vienna among the polishers of a piano factory. Nearly all of the 16 polishers employed there were taken sick at short intervals, and 5 of them had to undergo hospital treatment. The factory worked up maple, American walnut, and mahogany, and the polishers used as filler a mineral oil; as polish, alcohol denatured with wood alcohol and pyridic bases; and for staining, so-called old-mahogany stain and shellac. The use of alcohol denatured with wood alcohol and pyridic bases was found to be the cause of all these cases of sickness, and the use of alcohol denatured with turpentine was ordered as a substitute. After the use of this new polish had been adopted in this factory for some time cases of "polisher's eczema" occurred only sporadically. Similar cases occurred, according to the report of the inspector of Pardubitz, among female polishers in a cane factory. In this instance the inspector found as cause the washing of the hands in a too strong solution of soda. A solitary case of skin disease was found by the inspector of the district of Mährisch-Ostrau in a bent-wood furniture factory, where a female polisher had eczema on both hands. A change of occupation was ordered in this instance.

In the inspection district of Trautenau, in a watch factory, female workers engaged in silvering watch dials laid on the nitrate of silver with the palms of their bare hands. These workers were afflicted on their forearms with psora, a skin disease similar to the so-called "nickel eczema." The owner was ordered to furnish these workers with little leather pads and with hot water for washing. In a tinfoil factory in the district of Teplitz 2 tin smelters were found suffering from an eczema of the arms, which later on extended to the shoulders. The cause was found to be due to the fact that the suction apparatus, located above the melting pit, was not working properly, and remedial action was ordered. The inspector of the second district of Vienna observed that workmen in a file cutting establishment, who attended a blast apparatus operated by a steam jet, were afflicted with eczema on their hands, which were exposed to the steam and sand dust. The workmen were ordered to wear rubber gloves, which gave protection.

One solitary case of "chrome eczema" was reported by the inspector of Reichenberg. This case concerned a dyer in a woolen mill.

The inspectors of Mährisch-Ostrau and Przemysl reported several cases of "paraffin eczema." The former observed a number of cases in a mineral oil refinery. His report was the initiative for a thorough examination of the plant and workers by the district health officer and for subsequent preventive measures.

Anthrax.

Sixteen cases of anthrax became known to industrial inspectors during the year 1912. Two of these cases were fatal. Three-fourths of the cases of anthrax were found in the inspection district of Lemberg. The district inspector there reports that all his efforts to improve hygienic conditions and to introduce protective measures have so far been fruitless. The report recommends the introduction of compulsory disinfection of the raw material and legal regulation of the certification of disinfection.

Trachoma.

The inspector of the district of Mährisch-Ostrau reports a large number of cases of trachoma in his district, 8 of which occurred in a brickkiln, 40 in three knitting mills, 32 in a flax mill, and 14 in a cotton mill. The measures taken by the authorities and the widespread publication by them of popular instructions as to prevention of trachoma had the effect of preventing further spreading of the disease, and at the end of the year the number of workers afflicted with it had considerably decreased.

CHILD LABOR.

Of the 87,052 children under 16 years of age employed there were 962 under 14 years. The inspectors report 2,153 cases of illegal employment of workers, 948 of whom were male and 1,205 female. Of these illegally employed workers 705 were children under 14 years of age. Of these there were 70 or 3.3 per cent of all illegally employed persons who had not reached the age of 12 years. Most of these illegally employed children were in factories or large establishments. The greatest offenders against the child-labor laws were the brickworks. A large number of illegally employed children were also found in glassworks, sawmills, textile establishments, and in the food and clothing industries. There were found also 21 boys and 17 girls 12 years of age in smaller establishments which are not factories. One hundred and seventy-six children (105 boys and 71 girls) were found working longer than eight hours.

NIGHT WORK.

Nine hundred and seventeen women and 310 children were found to be illegally working at night; 174 of these women were under 18 years of age.

METHODS OF INSPECTION.

Inspectors belonging to one district report to the office daily, except on such days when they are absent on journeys in the district. Each inspector is entitled to expenses for so many traveling days, and as a rule does not exceed his budget for the simple reason that any further expenditure would have to be out of his own money. This is one of the complaints made by inspectors as well as by those who are interested in the work of inspection against the Austrian system of fixing a definite sum for each inspector for the expense of travels, without regard to the exigencies which may arise from time to time. It is manifest that inspectors will try to hurry their inspections in order to be through with them in their allotted time, and may neglect complaints received after they have spent all their allowance for traveling.

As a rule, inspectors make from 300 to 350 inspections a year, and spend about 100 days traveling in the district. The inspector's working-day is supposed to be six or seven hours; night inspections are very seldom made. The offices of the district inspectors are open from 9 to 3 or from 9 to 4, with the noon hour for lunch.

Much of the time of the inspector is taken up with commission work on applications for authorization. This work is usually attended to by the district inspector, unless some of the inspectors in his district are specially trained and fitted to pass upon the special establishments for which authorization is applied. It is said that two or three days a week are taken away from each inspector by this commission work on applications for authorization. The commission consists of several other officers besides the inspector, and they usually meet at the establishment for which authorization is sought, if such establishment is already in existence. They go over the plans and specifications, interview the owner, and make such suggestions for alterations as are necessary. Each expert makes out a special report or protocol on his finding. The inspection is repeated when the establishment is running in order to see that the orders of the experts were complied with. In some of the districts where there are three or four inspectors, one inspector is specially assigned to this work.

The relations between the district inspector and his staff seem to be very cordial and intimate.

The clerical work which inspectors have to perform is enormous, as has already been stated. Two or three hours a day are as a rule spent in this clerical work. Each factory or establishment has its own record (*akt*) in the office and all the papers connected with it are kept together, so that it is not difficult to find records of any establishment of which complaint is made, etc.

Inspectors are required to keep a daybook in which is noted in detail all the work for each day.

INSPECTION BOOKS.

For each inspection the inspectors are to fill out a printed form called inspection sheet (*Inspektionsbogen*). This form is as follows:

No —

Political district —

Class — Group —

Judicial district —

Community —

INSPECTION BOOKS.

- I. Name of establishment —
Address —
Factory or not —
- II. Responsible superintendent —
- III. Day and hour of inspection —
- IV. Inspector —
- V. Who accompanied the inspector on his inspection —
- VI. Number of workers:

Males — Under 12 years — Between 12 and 14 years — Between 14 and 16 years — Over 16 years —	Females — Under 12 years — Between 12 and 14 years — Between 14 and 16 years — Over 16 years —
--	--
- VII. Wages — Piecework — Week, work, etc. —
- VIII. Day of payment of wages —
- IX. Deduction from wages for sickness insurance, accident insurance, fines, lodging, tools, materials, etc. —
- X. Money fines —
- XI. Term of employment —
- XII. Hours of labor and pauses:
Summer — Winter — Day — Night —
- XIII. Change of shifts —
- XIV. Sunday work and holiday work —
- XV. Notices —
- XVI. Work books —
- XVII. Trade associations to which the owner belongs —
- XVIII. Apprenticeship system and continuation schools —
- XIX. Sickness insurance:
Contribution of workers —
- XX. Accident insurance:
Class percentage —
Premium —
- XXI. Occupational diseases, special accidents, first aid, use of materials injurious to health —
- XXII. Welfare work —
- XXIII. Lodging of workers —
- XXIV. Number, kind, and strength of motors —
- XXV. Number and kind of steam apparatus —
- XXVI. Construction of workshops and work rooms —
- XXVII. Exits and stairways —
- XXVIII. Illumination —
- XXIX. Heating, ventilation, drinking water, toilets —
- XXX. Existing apparatus, machines, and appliances —
- XXXI. Special safeguards —

These inspection sheets form a large part of the protocol of every establishment and each subsequent inspection adds its own inspection sheet.

From the report of the work done by inspectors in the previous section it will be noted that the main attention of the inspector is given to the inspection of factories, by which is meant, as has already been noted, establishments with more than 20 persons at work, and in which there is usually machinery run by steam or electricity.

The small workshops, of which there are many, domestic workshops, and home workers are practically not inspected at all. Even establishments like bakeries when they are small are neglected; and it is not unknown that there are a number of small bakeries in Vienna located in cellars, in insanitary conditions. The large establishments, however, are more often inspected, and are, as a rule, in good condition.

The inspectors have no special tests for air, light, or the amount of dust in the air of the shops. There is no special inspection made of dangerous trades or establishments where industrial poisons, gases, and fumes are found. Such establishments are inspected in the routine course of inspection, and are subject to the special rules and regulations already indicated in a previous chapter.

STANDARDS.

The general sanitary provisions for the protection of health and life which are found in article 74 of the Industrial Code, unlike those found in Germany, are well defined by ministerial order, which forms the standard by which the inspectors are guided in their work of inspection, as well as in their reports on applications for authorization of new establishments. These standards are embodied in an order of the Minister of Commerce with the consent of the Minister of the Interior, of November 23, 1905, and refer to those establishments for which a special concession is necessary. These standards are as follows:¹

Workrooms.—All workrooms must be so arranged that a minimum air space of 10 cubic meters (353.14 cubic feet) and a minimum floor space of 2 square meters (21.53 square feet) are available for each person employed. In establishments in which injurious dust, gases, or vapors are generated these minimum measurements must be increased according to requirements. In so far as the local building regulations do not otherwise prescribe, the workrooms must be at least 3 meters (9.84 feet) high, basement rooms at least 2.8 meters (9.19 feet), and attics for half the floor space at least 2.9 meters (9.51 feet). In buildings in existence at the coming in force of these provisions the workrooms may be of lesser height than above specified, but never of less than 2.6 meters (8.53 feet), provided that the generation of dust, heat, or steam does not require a greater height, and that the air space per person is at least 15 cubic meters (529.71 cubic feet).

¹ Translated in the United States Bureau of Labor Statistics from *Manzsche Gesetzausgabe, Gewerbeordnung, Vol. I, pp. 544 ff., Vienna, 1908.*

Permanent working places in workrooms with stone or cement floors must be covered with a layer of wood or some other material which is a poor conductor of heat, in so far as this does not seem dangerous on account of fire. In workrooms in which large quantities of liquids are handled, the flooring must be water-tight and be constructed with such an incline that the liquids can easily drain. Permanent working places in such rooms must be covered with wooden grids. The flooring around hearths and open fireplaces and near the openings of furnaces must be constructed of refractory material for a minimum width of 60 centimeters (1.97 feet).

The use of basements and attics for workrooms is permissible only if they conform to the building regulations. Basement rooms must not be exposed to the danger of inundation, and must be protected against humidity; their ceilings must be at least 60 centimeters (1.97 feet) above the street level and the flooring not more than 2.5 meters (8.2 feet) below the street level. They must, moreover, be properly ventilated and dry. Attics may be used as workrooms only when their arrangement conforms to the building ordinances relating to living rooms.

Doors leading from the workrooms into the open air must open outward; doors into corridors or inclosed stairways must either open outward or be sliding doors, and in case of large rooms be constructed in such a manner that the persons employed in the latter may in emergency be able to leave them quickly and safely. Doors leading to inclosed stairways must be so constructed that they do not obstruct the stairways when opened. In workrooms where explosives, inflammable gases, vapors, or fluids are present, the doors and doorframes must be constructed of fireproof material.

Emergency exits are to be installed in those establishments in which in case of danger the emptying of the rooms and buildings can not be effected by means of the ordinary exits without dangerous blocking; and especially so where inflammable substances or gases are in existence. Exits must be calculated for the number of workers in the workroom on the basis of a width of 1.20 meters (3.94 feet) for each 50 persons. Emergency exits are to be marked as such, and if kept closed during normal operation the keys must be easy of access.

If the building regulations do not contain any provisions as to stairways, each building having more than one floor must be provided with a fireproof stairway of a straight running type, inclosed in a brick shaft with fireproof ceiling, by means of which one may directly reach the open from all rooms. In the case of large establishments several of these stairways are to be installed in such a manner that no part of the buildings shall be more than 40 meters (131.2 feet) distant from a stairway. If such a stair has to serve for not more than 50 persons it must have a minimum width of 1.25 meters (4.10 feet), to which is to be added 50 centimeters (1.64 feet) for each additional 50 persons or there is to be provided a proportionately larger number of stairways.

Where special local conditions require the installation of fire escapes, this requirement may be satisfied by the installation on the outside of the building of iron stairs of a straight running type; or, if only a small number of workmen are employed, of iron fire ladders, which must be connected with the workrooms by plainly marked exits of easy access.

The main aisles in all workrooms shall have a minimum width of 1 meter (3.28 feet) which shall not be obstructed by belts, gearings, shafts, etc., and the necessary passages between machines shall have a width of 60 centimeters (1.97 feet). Where the danger of the working machines, the large size of the pieces to be worked, or the large quantity of refuse require it, the width of the aisles and passages shall be correspondingly increased.

The approach to workrooms in the attic shall be inclosed by fireproof walls and lead directly to a fireproof main stairway.

The windows and skylights of all workrooms shall be arranged in such a manner that these rooms are supplied with sufficient sunlight, but workmen in closed workrooms shall be protected from direct sunlight.

All workrooms, passages, stairways and factory yards are, if necessary, to be sufficiently illuminated also in daytime. Oil lamps with fragile glass bodies are not to be used. All appliances for lighting purposes must be safely suspended. Oil lamps with burners below the receptacles for the oil are to be suspended or fastened in such a manner that the receptacles are not exposed to too high a temperature. Rooms used for the storage of such lamps may not be used as workrooms. In the case of electric lighting the safety regulations issued by the electrotechnical congress in Vienna in 1899 are to be considered as standard.

Wherever a central lighting system is in use provision must be made for suitable emergency lighting, independent of the central lighting plant. Emergency lights must be regularly maintained in passages and stairways and near all doors of exit.

Workrooms in which explosives, inflammable gases, vapors, or fluids are present may be illuminated only from the outside. The sources of light must be separated from the workrooms by a tight inclosure of glass. If local conditions do not permit of such illumination, electric incandescent lights may be used, provided that the wiring is properly insulated, the switching devices are located outside of the rooms, and that the incandescent lamps are inclosed in a protective covering of strong glass.

Danger lights must be provided on the beginning of darkness at all floor openings, trapdoors, scaffolding, platforms, stair landings, windows, elevator shafts, openings for loading, chutes, pits, canals, etc., if reliable appliances are not provided to protect men and materials from falling.

Lights, with the exception of safety lamps or electric incandescent lights, may not be carried around in establishments exposed to danger from fire.

All workrooms permanently occupied by workmen, unless the operation in itself produces sufficiently high temperature or the nature of the operation requires the maintenance of a low temperature, must be provided with heating apparatus, which exclude all danger of fire and operate in such a manner that the workmen are not molested by the radiation of heat or suffer in their health. Iron stoves must be surrounded with metal shields or fire screens. Workrooms in which explosives, deflagrating gases, vapors, or fluids are in existence may be heated only in a manner which entirely excludes any danger of fire.

Provision must be made in each workroom for a sufficient supply of fresh air and the removal of foul air, but harmful drafts are to be avoided.

Establishments with generation of injurious dust, gases, or vapors must be provided with appliances for the prevention of harmful effects; if necessary, suction apparatus is to be placed as near to the place of generation as possible.

In workrooms where the operation generates large quantities of water vapors suitable measures (heating apparatus, strong ventilation, artificial introduction of preheated air, avoidance of the direct admission of cold outside air, double windows and double roofs, etc.) must be taken to prevent as much as possible the formation of steam clouds endangering the safety of the workmen, especially if the machines in such workrooms are operated by motive power.

Open fireplaces are to be provided with hoods, so that the gases are removed from the workrooms. The exhaust from explosive and combustion motors (gas, gasoline, oil, alcohol, etc.) are to be conducted above the roof or into a chimney.

The buildings of each establishment are always to be kept in a safe and clean condition. Special attention is to be paid to the construction of heavily loaded ceilings.

Approaches to doors and stairways are to be kept in good condition and free from all obstruction. The same applies also to other passages, in so far as the nature of the operation does not require temporary obstruction.

Each stairway must be provided with at least one handrail and on the open side with a secured railing. Openings in the floors, trapdoors, scaffoldings, platforms, stair landings, windows, elevator shafts, galleries, chutes, pits, canals, etc., are to be provided with guards against the falling of men and material.

Steam boilers.—The boiler house shall be of such a height that a free space of at least 1.8 meters (5.91 feet) remains above the boiler platform, which shall in no manner be used as a work, sleeping, storage, or drying room.

Each boiler house must be provided with at least one exit leading to the open air and having a door opening outward; larger boiler plants are to be provided with a correspondingly large number of exits; the boiler house must not be used as a regular passage or thoroughfare nor for other purposes not connected with the operation of the boilers. The bricking in of the boilers must be effected in such a manner that according to the number of boilers one or more passages of a width of 70 centimeters (2.30 feet) leading to the rear of the bricking in remain open. The stokehole must have a depth of at least 2.5 meters (8.20 feet). If ash chutes are in existence under the stokehole, they are to be arranged in such a manner that they have two approaches and are correspondingly roomy, well ventilated, and sufficiently illuminated.

The law of July 7, 1871 (R. 112), forms the basis of all regulations relating to boilers. The examination and periodical inspection of boilers may, according to this law, be effected either through the boiler inspectors appointed by the State, or if the user of the boiler is a member of an association constituted for the inspection of boilers, through the officially authorized inspectors of such an association. The orders of these State or association inspectors given on occasion of examinations or inspections of boilers must be obeyed without demur.

The law provides for the issuing of regulations relating to the construction, setting up, and inspection of boilers and to protective measures through ministerial decrees. The most important of the decrees issued in pursuance of the law is the one of October 1, 1875 (R. 130), issued by the Minister of Commerce in conjunction with the Minister of the Interior. This decree contains the fundamental provision that the choice of the material, the determination of the latter's strength, and the manner of construction of the boilers is left to the manufacturer under the latter's own responsibility. As far as imported boilers are concerned, the responsibility rests also with the user. The use of cast-iron and brass plate for the boiler shell, the fire and water tube is generally prohibited; the exceptional admission of these materials for such purposes requires a ministerial permit.

The owner of a domestic or imported boiler of more than 80 liters (21.13 gallons) capacity is held responsible for it; that the latter is not used until it has undergone the prescribed examination and been found serviceable. The decree fixes the test pressure in proportion to the highest permissible steam pressure, which latter, in addition to other data important for the identity of the boiler, must be made evident on the same. Each boiler must be inspected at least once each year, and in addition at every change of a valve or of a valve lever. At intervals of five years, beginning from the date of the first examination, each boiler must at the time of the annual inspection be subjected to a careful examination, i. e., to a pressure test by the use of a control pressure gauge, and the result of this examination is to be noted on the original certificate.

Further provisions regulate the appeal from orders given by the boiler inspectors on occasion of their examinations or inspections and also the duty of notification in case of impending danger in the use of boilers and after explosions.

The decree of the Minister of Commerce of October 1, 1875 (Z. 25021), contains details relating to the procedure at examinations and periodical inspections and to the annual reports of the boiler inspectors.

The decree of December 2, 1893 (R. 172), makes the reexamination of old boilers transferred to another establishment obligatory and provides that the examination

shall be made at the place of future use by the inspectors in whose district this place is located. The original certificate of serviceableness must be produced at the reexamination. The decree of the Minister of Commerce of June 8, 1894 (R. 108), makes also this reexamination at the place of use obligatory for new boilers. Examination at the place of production may be substituted only in exceptional cases.

Boilers located in the open must be provided with a shed roof for the stokehole. Boiler platforms and galleries must be made accessible by means of fixed ladders or stairways provided with handrails. These ladders or stairs must be as near as possible to the stokehole. In the case of large boiler plants a sufficient number of fixed ascents must be provided at the front and rear of the boiler wall. In the case of vertical boilers the safety fittings at least shall be safely accessible by means of ascension ladders. Boiler galleries are to be guarded by fixed railings.

In the case of boilers located in workrooms or in the open the drain valves and cocks are to be suitably secured, so that any manipulation by intruders is excluded.

Stokeholes, boiler ascents, pressure and water gauges must receive sufficient light, or be sufficiently lighted.

Gauge glasses are to be provided with strong tube protectors, which, however, must not impair the facilities for observation of the water gauge.

Each boiler subject to inspection must be capable of being safely cut off from other boilers in operation in all tube connections and firing apparatus by reliably working appliances. Steam piping running through workrooms, except that serving for heating purposes or hard of access on account of its location, is to be covered with nonconducting material. The steam piping must be provided with draining appliances to avoid water hammers. The insertion of an automatic nonreturn valve in the main steam pipe immediately behind each boiler is recommended for safety purposes.

Power plants.—The engine house is to be connected by signal apparatus with the workrooms depending on the power engine, so that the engineer may be able to announce in the workrooms the starting of the engine, while on the other hand the stopping of the engine may be brought about from the workrooms. In turbine houses provision is to be made for safe access to the lower turbine room.

The moving parts of the power engines (fly wheel, crank, connecting rod, cross head, tail rod of the piston rod, the interlocking of toothed and bevel wheels, pump piston, etc.) shall as much as operation permits, and in so far as they are located within the area of the movements of the engineer be guarded in such a manner that the latter is protected in his activity. Power engines located in workrooms and not directly geared to the machines shall be entirely surrounded by a railing, unless they are safeguarded by their location.

Governors driven by belting must be protected against slipping of the belt. The use of hand oil cans in power engines shall be avoided as much as possible.

Water wheels must in their entire circumference be guarded in such a manner that men and material can not fall into the wheel course.

In the case of horsepower the wheels and shafting must be entirely covered, and in the case of horizontal horsepower also the connecting shaft; the covering may be removed only for the purpose of oiling, inspection, etc., after the draft animals have been unhitched. The transmission of the power from the horsepower to the working machine must be so constructed that if the draft animals suddenly come to a standstill the horsepower will not continue to move.

Power engines which require cranking shall be provided with appliances for the flywheel if the latter's outer diameter exceeds 1.6 meters (5.25 feet) or if in case of small diameter the flywheel is hard of access.

Hydraulic motors are to be so constructed that they can be stopped and uncoupled from the operating building or from the turbine house. The stopping appliances (sluice boards, sliding gates, etc.) must be so constructed as to close tightly thus

preventing an accidental starting of the hydraulic motor. In case of repairs or the removal of ice, etc., water wheels are to be stopped and locked by strong locking devices.

In the case of turbines operating under a high head all inlet pipes through which a person can pass must be provided at their lower end with a manhole.

The danger of back pressure ignition in explosive and combustion motors is to be prevented by suitable check valves.

The construction and operation of machinery and appliances for the production, motorial use, transforming, storage, and conducting of electric currents is to be governed by the "safety regulations for strong electric currents" determined upon in 1899 by the electrotechnical congress in Vienna and issued and revised by the electrotechnical association of Vienna.

Transmission of power.—All live shafting is to be arranged in such a manner that it may be stopped independently of the operating engine. Shafting, belt pulleys, toothed wheels, and other moving transmission parts which are within a distance of less than 2 meters (6.56 feet) above the floor are to be covered; vertical belts are to be protected with lagging up to 1.8 meters (5.91 feet) above the floor; shafting passing through the floor must be securely covered. Protruding keys, bolts, etc., on moving transmission parts are to be avoided or covered by smooth casing; the intermeshing of cog and bevel wheels are also to be covered.

In establishments with continuous operation, in which the regular attendance on transmissions is also required during operation, platforms with skirting boards and a safe fixed railing are to be erected alongside of those belts and countershafts which are located at a height exceeding 4.5 meters (14.76 feet).

The transmission bearings are to be equipped as far as possible with automatic lubrication. Hook ladders so constructed that slipping is prevented as much as possible must be provided for the attendance on transmissions.

Belt shifters or other suitable contrivances shall be provided for the putting on during operation of belts which are wider than 40 centimeters (15.7 inches) or in case of lesser width run with a velocity exceeding 10 meters (32.81 feet) per second. Fixed supports for holding belts or ropes when thrown off are to be installed near the belt or rope pulleys on the transmission shafts. Belt and rope driving with which workmen may come in contact is to be protected. Horsepower belting, belting running with a velocity in excess of 10 meters (32.81 feet) per second, or with a width exceeding 180 millimeters (7.09 inches), also rope and chain driving are to be guarded in such a manner that the belt, rope, and chain in case of breaking may smoothly run off. Driving belts must have neither flapping ends nor protruding rivets or fasteners.

Working machines and shop equipment.—Each working machine operated by motive power must be provided with a loose pulley and a reliable shifting fork or with some other dangerless, quick, and safely working stopping device. The starting mechanism and other movable parts of working machines and auxiliary equipment shall be covered or guarded in so far as the workmen come in contact with them and are exposed to injury, and in so far as the operation of the machines permits it. Especially the meshing of cog and bevel wheels, the inlet places of friction cones and disks, also fast running cog gearing are to be covered and the excursion of counterweights, balancing apparatus, governor balls, etc., is to be guarded. Protruding keys, screw heads, and nuts on rotating shafts and pulleys, and protruding shaft ends are to be smoothly incased, and fast revolving belt pulleys or flywheels are to be covered. Suitable protective appliances are to be provided on the inlet sides of rolls, if the material is not introduced automatically or by means of supports or other suitable devices, and the operation permits it, so that getting the hands into them is prevented. Carding rolls and revolving cutters are, under all circumstances, to be protected by covering or a frame.

Grindstones must be so installed that they can be stopped independently of the transmission. Mill wheels and emery wheels operated by motive power must have

round bores and shall not be fastened to the shaft with wedges. Supporting appliances are to be provided for the sharpening of tools. Wheels whose rim velocity exceeds 10 meters (32.81 feet) per second are to be protected with sufficiently strong adjustable hoods.

Circular saws in so far as their mode of use permits the equipment with a protective appliance are to be provided on the back of the saw blade with a close fitting wedge, and the part of the saw blade located under the table board is to be protected on both sides against contact. If reliable feeding apparatus is not in existence the upper part of the saw blade is to be provided with an adjustable hood.

Reservoirs, tanks, boilers and other open receptacles having a depth of more than 0.85 meters (2.79 feet) or designated to receive corrosive, poisonous, or hot substances shall be suitably railed in or reliably covered, unless their brim is located at least 0.85 meter (2.79 feet) above the floor or the station of the workman.

Piping for steam, gases, acids, alkalies, or hot liquids running into apparatus the interior of which is accessible must be provided with reliable stop valves.

Wooden ladders shall be constructed of sound, strong material; the rungs must be inserted in such a manner that they can not move; nailed-on boards or ledges are not permissible for rungs. In the case of double ladders both arms are to be connected by hooks and loops; the joints shall be fastened with rivets or nut screws.

Elevators, lifting apparatus, rammers, and pile drivers.—Elevator shafts shall, at all accessible places, with exception of the landings for passengers or freight, be inclosed or guarded up to a minimum height of 1.8 meters (5.91 feet) in such a manner that all danger is excluded. Freight and passenger landings of all floors are to be provided with doors or barriers closing the shaft automatically on the starting of the elevator or making the movement of the latter possible only if the doors or barriers are closed. If block-and-tackle hoists are used the freight landings must be suitably guarded so as to prevent the falling of persons or material. Each elevator used for passengers must be provided with an automatic safety apparatus or a speed governor and with a protective roof. In the case of directly operated hydraulic elevators used for passengers, a safety contrivance preventing the dropping of the elevator in case of break of a pipe is to be inserted between the controller and the driving cylinder. If several hydraulic elevators are fed in common by one accumulator an isolating valve must be inserted in each delivery pipe. Each freight or passenger landing must have sufficient light or be properly illuminated. Elevators operated by motor power must be provided with an automatic contrivance limiting the run at top and bottom.

The driving machinery of elevators, bucket elevators, self-acting inclined planes, cranes, worm conveyors, etc., are to be guarded, unless they are protected by their location. Counterweights must run in safe guides and all toothed gearing exposed to contact is to be covered. Elevators, bucket elevators, and all similar hoisting contrivances must be so constructed that persons employed below them are not endangered by the falling of materials. Vertical bucket elevators are to be guarded at all places of access with the exception of places of attendance.

Self-acting inclined planes are to be equipped in such a manner with proper contrivances, brakes, double ropes, safety catches, etc., that persons at the foot can not be endangered by cars rolling down. The braking appliance must be so constructed that the brake is set while standing still and is released only at the beginning of the run.

Cranes and winches are to be provided with pawls and ribbon brakes or other reliably working braking contrivances. If the burden is to be lowered by gravity and the machine has two rates of speed, it must be provided with a catch to prevent automatic change to the faster speed.

At rammers and pile drivers protecting screens must be provided for the workmen employed at them, and for the safety of the near-by working places and passageways.

Traveling cranes operated by a craneman must be equipped with sufficiently safe and railed-in platforms or galleries to prevent the falling of men and material. All accessible cogwheels are to be covered. On each crane must be plainly marked its carrying capacity in kilograms.

Before being put into use all elevators must, while loaded with the highest permissible tonnage, be tested by an expert or an operating official with a technical education with regard to their mechanical equipment and safety apparatus. The carrying parts are to be tested for at least 20 minutes with double the permissible tonnage for which the elevator is rated. The load must hang free during the test. This inspection has to be repeated in case of passenger elevators at least every three months and in case of freight elevators every six months.

All parts of other hoisting apparatus which are subject to a severe strain are to be tested at least once per year as to their carrying capacity and safe operation. At cranes with a capacity up to 25 metric tons (27.6 tons), inclusive, the test is to be made with a tonnage 25 per cent higher, while at cranes with a greater carrying capacity the test burden should be 10 per cent higher than the carrying capacity. Records shall be kept of all tests made.

Transportation.—Where the switching of railroad cars on industrial tracks is done by men or draft animals the switchmen are to be furnished with brake sticks, brake blocks, wedges, etc. Draw chains or ropes of a minimum length of 2.5 meters (8.2 feet) are to be used if the switching is done with the help of draft animals. Industrial railroads at which the switching is effected by motive power must be equipped with all appliances required for the orderly operation of railroads.

On inclined planes used for the transportation of materials reliable braking is to be effected by providing a sufficient number of vehicles supplied with brakes.

Turntables and traveling platforms must be so constructed that they can be locked when in their correct position.

Sliding rails or boards used in the loading or unloading of heavy objects are to be secured against accidental slipping or overturning, and during the winter must be cleaned of ice and sprinkled with ashes, sand, etc. The vehicles are to be secured by proper contrivances against overturning. Dumping cars must be provided with suitable appliances for securely holding them at any angle. Rolls, pipes, cylinders, barrels, etc., while transported are to be secured against rolling down.

Storage.—In storage rooms located above other rooms the maximum permissible load per square meter in kilograms must be posted. Where materials are piled up in great quantities suitable measures are to be taken to prevent a collapsing of the piled up goods.

Stocks of liquid combustibles may be stored only in fireproof, well-ventilated rooms, separated from other workrooms, and whose floor is situated lower than that of the adjoining rooms. Such storage rooms, in which a supply of suitable extinguishing materials, such as sand, ashes, etc., is always to be kept on hand, may neither be used for the storage of other materials nor for other purposes and may be entered only with safety lamps.

Protective measures.—Workmen who by the nature of their occupation are exposed to a possible injury of their eyes by vapors, corrosive or hot liquids, splinters, incandescent or molten materials are to be provided with goggles, eye shades, or face masks. All other workmen are, if it seems necessary, to be protected by screens or nets.

Workmen whose respiratory organs seem endangered by gases, vapors, or dust must be equipped with respirators or other suitable protective appliances. All these appliances must always be kept in clean condition.

Workmen exposed to burning, welting, or injury of their feet are to be provided with suitable footwear. Those handling strong acids, hot, corrosive, or poisonous liquids, or employed in the transportation of sharp-edged or pointed objects are to be equipped

with aprons of leather or other suitable material, and in so far as the manipulation permits it with hand leathers or gloves of strong material. If there is danger of injury by incandescent or molten metal, they are moreover to be provided with leg guards.

Workmen handling materials injurious to the health, such as yellow phosphorus, lead products, mercury, etc., as also those employed in the assorting of rags, are to be supplied with special work clothes, and provision is to be made for the latter's cleaning and storage. Workmen occupied in emptying receptacles containing strong acids, hot, corrosive, or poisonous liquids and not provided with delivery cocks must be provided with safety siphons, pumps, etc.

The materials necessary for the giving of first aid (bandages, styptics, restoratives, disinfectants, etc., and, if necessary, also means of transportation) must always be kept on hand in all large scale establishments and also in each establishment exposing its workmen to special dangers. Establishment managers and the supervisory personnel must know the use of these materials.

Wash and bath rooms and wardrobes.—Provision is to be made in each establishment for a sufficient supply of water for drinking and washing purposes. Each large scale establishment in which injurious, corrosive, or poisonous gases, liquids, or solid substances are used or in which there may be a heavy generation of dust, or other causes for pollution shall be equipped with separate wash and dressing rooms for both sexes and with corresponding washing appliances. Those large establishments in which it becomes necessary for specified groups of workers to undergo a thorough cleaning or cooling of the body to avoid injurious consequences must be provided with suitably arranged bathing appliances and with soap and towels. Provision must also be made to protect the workmen's clothing, removed by them before starting work, against influences injurious to the health, such as dampness, dust, or vapors.

Privies.—The local building and sanitary regulations determine the number and construction of privies. Wherever such regulations are not in existence the standard shall be followed of one accommodation for each 30 persons. The privies shall be conveniently located. If the privies are located inside a building in which work is carried on, the conduit pipes must be connected with ventilator pipes of at least 25 centimeters (9.84 inches) diameter and reaching above the roof. Privies not provided with a flushing device shall not be in direct connection with workrooms, but be separated from them by well-ventilated anterooms or roofed-in passageways.

Privies shall have sufficient light or be suitably illuminated and be constructed weatherproof. Large-scale establishments must have separate privies for each sex, with separate entrances properly designated. Privies for men shall be provided with urinals of impermeable material, to be kept in a nonleaking condition. Privies and urinals shall always be kept in a clean condition and those not flushed by water are to be provided with appliances preventing bad odors.

The regulations contained in the preceding decree, which were the result of protracted and thorough discussions of the Commission for the Prevention of Accident, as also of joint discussions of the interested central authorities and their technical bodies, have the purpose to secure a construction and technical equipment of the workrooms corresponding to the requirements of hygiene and safety, and to safeguard in this manner the industrial workers as much as possible against the dangers and injuries arising from industrial labor, and on the other hand to remove the numerous complaints of employers with regard to the irregular application of article 74 of the Industrial Code.

The preceding general protective regulations do, however, not exclude the issuing of special regulations by the industrial authorities in the case of establishments which, on account of local or operating conditions after a hearing of experts, are deemed necessary.

The Minister of Commerce jointly with the Minister of the Interior has, under date of November 23, 1905, issued an order containing instructions for the political and indus-

trial authorities concerning the enforcement of the decree of the same date. These instructions are based on the following principles:

1. In all establishments to be licensed by the industrial authorities after January 1, 1906, the preceding general protective regulations are to be enforced immediately and unconditionally.

2. The same applies also to all changes in the construction and equipment of such establishments.

3. These general protective regulations shall also serve as a basis in the issuing of regulations, if the industrial authorities on inspecting the location of establishments to be newly erected and not subject to the law requiring a license find occasion to prescribe to the owner of the establishment measures based on article 74 of the Industrial Code.

4. The general protective regulations issued for newly erected establishments should also be considered as a goal to be reached by existing industrial establishments, and the industrial inspectors and authorities by their tactful influence should advance the voluntary adoption of these regulations.

That the purpose by which the standardization of the provisions of article 74 of the Industrial Code was actuated may be actually successful, it is finally necessary to regulate the operation of the establishments and the conduct of the workmen in such a manner as is required to make operation as nearly without danger as possible. The two above-mentioned ministers issued, therefore, as an appendix to their order a series of directions which have as their object the regulation of the industrial operation and the conduct of the workmen, and whose incorporation in the working regulations (shop rules) is warmly recommended by them to all owners of establishments.

BELGIUM.

Legislation for the protection of workers in Belgium begins with the imperial decree of January 3, 1813, relating to workers in mines. Among its provisions occurs the first prohibition of work of children under 10 years of age. This law also provided for its enforcement by the appointment of a corps of mining engineers. There was, however, no legislation for a long time concerning industrial workers.

In 1843 a commission was appointed to investigate industrial conditions in the Kingdom and, after a thorough investigation, it made a report published in three volumes in 1846-1849.

A number of projects were laid before Parliament for labor protection in industries, but few laws were enacted until June 28, 1884, when the minimum age of children admitted to work was raised for boys to 12 years and for girls to 14 years. A second industrial investigating commission, appointed on August 15, 1886, was followed by the enactment of the laws of 1887, 1888, 1889, and 1894.

Labor inspection was first instituted by the law of May 5, 1888, by which a special corps of inspectors was appointed for the supervision of establishments regarded as dangerous, unhealthy, and unsuitable. The law gave to them as well as to inspectors of machinery and boilers the right of entry to all establishments subject to their supervision. Infractions of the law were to be punished by fines from 26 francs to 100 francs (\$5.02 to \$19.30). Obstruction of work of inspectors was also to be punished with fines from 26 to 100 francs (\$5.02 to \$19.30). Violations of the law repeated within one year of a previous condemnation were to be punished more severely.

The first inspectorial force appointed according to the law of 1888 was a comparatively small one, but with the agitation of the Social Democrats, who first came into the Belgium Parliament in 1894, the Government was compelled to reorganize the inspectorial department, which was done by the law of 1895. At first there were only 22 inspectors and the whole department consisted of 30 persons. The increase in the number of inspectors since that time has been very slow and the organization of the labor-inspection department has not materially developed since its inception in 1895.

SCOPE OF LABOR LAWS AND THEIR ADMINISTRATION.

The Labor Code of Belgium consists of a number of laws issued from time to time, these laws not being as yet consolidated or codified, as is the case with the Industrial Code of Germany, Austria, or France.

All of the labor laws are to be found in the volume published by the Ministry of Industry and Labor, entitled "*The Laws and Regulations Concerning Labor and Regulation of Classified Establishments (Lois et Règlements concernant la Police du travail et le Régime des établissements classés)*".

The laws are classified according to the subjects. Thus there are a number of laws, such as:

On labor of women, young persons, and children in industrial establishments.—The law of December 13, 1889; circular of December 22, 1890; royal decree of December 24, 1890; ministerial circular of February 3, 1903; royal decree of December 13, 1889; decree of December 26, 1892, relating to protected persons in the various industries.

Nightwork of women.—Law of May 28, 1908; law of August 10, 1911; royal decree of June 14, 1912.

Sunday rest.—Law of July 17, 1905; royal decree of July 28, 1906; royal decree of May 27, 1907; royal decrees of April 15 and August 18, 1907, and December 30, 1910; ministerial interpretative decisions of the law of July 17, 1905.

Shop regulations.—The law of June 15, 1896; royal decree of September 4, 1896; circular of August 20, 1897; royal decree of May 31, 1899.

Payment of wages, etc.—Law of August 16, 1887; royal decree of December 5, 1887; circular of December 19, 1887; law of July 30, 1901; royal decrees of October 28, 1901, October 1, 1903, and July 16, 1905.

Health and security of workers.—Laws of July 2, 1899, June 25, 1905, April 30, 1909, August 20, 1909; royal decrees of March 31, 1905, November 20, 1906, August 20, 1908, June 15, July 20, and July 25, 1910; ministerial decrees of July 25 and September 14, 1910.

Regulation of classified establishments.—These establishments are regulated by not fewer than 18 various laws, royal decrees, ministerial decrees, ministerial decisions, and ministerial circulars.

Labor contracts.—Law of March 10, 1900, and circular of August 29, 1900.

Compensation for industrial accidents.—December 24, 1903; royal decree of December 20, 1904; December 23, 1904.

Inspection of labor.—This is regulated by the law of May 5, 1888, and by the royal decree of October 22, 1895, with a number of subsequent laws and royal decrees and ministerial decrees.

The following is a brief and incomplete summary of the most important items of the labor laws.

LEGISLATION IN REGARD TO PROTECTED PERSONS.

The labor laws of Belgium give in detail many provisions for the protection of women, young persons, and children, referring not only to general conditions but to particular industries and even to processes in each industry.

Children under 12 years are prohibited from working.

Male young persons between 12 and 16 years and female young persons between 12 and 21 years are allowed to work under restrictions given by the various laws and decrees.

Adult women are not permitted to work within four weeks after their confinement.

Male children under 16 years and female young persons under 21 years may not work at night between 9 p. m. and 5 a. m.

The royal decree of December 26, 1892, makes special provisions as to duration of work and conditions under which children, young persons, and women may work in specific industries. Each industry is designated as well as the processes in the industry and the exact duration of labor allowed in each industry and process. The daily as well as the weekly maximum hours of labor are given for each industry.

Besides these restrictions, the royal decree prohibits the working of young male persons under 16 years and female persons under 21 years in 46 specially dangerous industries. In another large group of industries, the same decree, in article 6, specifies the part of the establishment in which the protected persons are not allowed to work.

The recommendations of the Belgian Section of the International Association for Labor Legislation were embodied in the law of August 10, 1911, and nightwork of all women is entirely prohibited. Certain seasonal industries are excepted by royal decrees. Exceptions may also be granted for the working up of perishable materials and in cases of force majeure.

HEALTH AND SAFETY OF WORKERS.

A number of laws and decrees have been issued concerning the health and safety of workers, the prevention of accidents, etc.

There are few countries which give so many specific instructions and which make such detailed regulations for trades regarded as dangerous, unhealthy, and unsuitable, because of their effects either upon the public at large or upon the workers within the establishments. These "classified establishments" need an authorization for beginning operation. The authorization of such establishments is quite a complicated affair in which the Ministry of Labor is involved and sometimes other ministries as well as various local authorities. Certain establishments in the classified list require the authorization of a large number of functionaries and technical commissions. Thus, according to article 7 of the royal decree of December 27, 1886, the technical functionaries who may be called upon to report on certain establishments in the classified list are the following:

1. Superior council of public hygiene;
2. Inspectors of dangerous establishments;
3. Functionaries of the inspection department of the local roads and nonnavigable waters;
4. Medical provincial commissions and public-health authorities;
5. Provincial technical functionaries;
6. Mining officials;
7. Engineers of bridges and roads.

The royal decree of May 31, 1887, which gives the nomenclature of the establishments classified as dangerous, unhealthy, and unsuitable gives in detail the names of such establishments according to alphabetical order with the explanation of the principal dangers of each establishment. This list fills 61 pages of the volume on labor laws and consists of from 450 to 500 classes of establishments.

Besides this general decree there are a number of special decisions and ministerial orders which add to these industries as well as interpret certain regulations. Certain industries which are particularly unhealthy are under special rules and are supervised by the medical inspectors.

In certain dangerous occupations, such as phosphorus-match manufacture, white-lead manufacture, etc., the law requires every worker to undergo a monthly medical examination by a physician, approved by the Minister of Labor. The physician is obligated to keep a register in which the results of the examination are to be inscribed and which is to be open to the inspectors. According to a ministerial order of February 11, 1913, the fees of physicians for medical examinations are as follows:

For visits made on days, hours, and in localities fixed by the physician: 2 francs (38.6 cents) for the first person examined; 50 centimes (9.7 cents) for each of the next nine persons examined; and 25 centimes (4.8 cents) for each additional person examined. For visits made on days, hours, and in localities according to the choice of the employer: 7 francs (\$1.35) for examination of first dozen or fraction of a dozen workers; 2 francs (38.6 cents) for the second, third, fourth, and fifth dozen or fraction of a dozen employees; and 1 franc (19.3 cents) for examination of every dozen or fraction of a dozen following. Fees are doubled if the examinations are made on Sundays or on legal holidays.

OFFICE OF LABOR.

The general administration of all the labor laws is centered in the office of labor (*Office du Travail*), which is at present a part of the Ministry of Industry and Labor (*Ministère de L'Industrie et du Travail*). The office of labor was organized on April 12, 1895, and has charge not only of the administration and enforcement of the laws, but of various investigations connected with labor and industry. The office of labor is divided into six sections.

The first section has to do with the gathering of statistics and making special investigations and researches. This section issues a publication called "*Revue de Travail*."

The second section is that of "Conciliation." This section, which is under the council of industry and labor, takes charge of investigations of strikes, lockouts, etc., and also of endeavors for conciliation

and arbitration between workers and employers. This section issues an annual of labor legislation.

The third section takes charge of the inspection of labor and of dangerous, unhealthy, and unsuitable establishments and has charge of the administration of the factory acts and factory inspection.

The fourth section occupies itself with insurance against industrial accidents.

The fifth section takes charge of general social insurance, old-age pensions, etc.

The sixth section deals with trade and labor organizations and unions.

SUPERIOR COUNCIL OF LABOR.

This institution, modeled after the French one, was established April 7, 1892, and consists of 48 members. Its functions are to be a consulting corps to the Government, to discuss matters relating to labor, and to make recommendations to the Government. The council has no executive or legislative powers. All the members are named by the King for a term of four years. Sixteen are representatives of the laboring class, sixteen are employers, and sixteen are persons well versed in economic and social questions—men connected with universities, political economists, etc. Most of the laws and royal decrees as well as ministerial decrees and circulars are discussed first at the meetings of the council without, however, the council having any direct voice in the action of the King or the ministry.

SCOPE AND CHARACTER OF ADMINISTRATION.

The administration of the labor laws so far as they relate to industrial and commercial establishments is the function of the factory-inspection department. The enforcement of the labor laws in so far as they relate to mines, quarries, and metallurgical establishments is in the hands of the mining engineers and their assistant delegate inspectors.

The function of the labor inspectors is the enforcement of the following classes of laws:

1. The laws relating to classified establishments which are regarded as dangerous, unhealthy, and unsuitable.

The work of the inspectors in respect to this law is (a) to grant or refuse applications for authorization of new establishments; (b) to prevent these establishments from becoming a public nuisance; and (c) to prevent these establishments from producing injuries to health and life of the workers within them. There are between 450 and 500 categories of classified establishments, and the law applies to these regardless of the number of workers in each establishment.

2. The laws concerning the labor of women, young persons, and children.

In relation to these laws the inspectors must ratify the ages of the children and note the conditions under which they work. These laws apply not only to factories, shops, and classified establishments, but also to transportation agencies on land and water, ports, stations, etc., and to all public and private establishments, as well as those having professional or philanthropic establishments. The enforcement by the inspectors, however, does not apply to establishments in which only the members of the family are employed under the authority of the father and mother, provided such establishments are not classed as dangerous, unhealthy, or unsuitable and the work is not done by the aid of steam power or mechanical motors.

3. The law concerning payment of wages.

This law applies to all industrial establishments irrespective of the number of employees, and relates to cash payments of wages, to fines, etc.

4. The laws as to workshop books and regulations.

This law does not apply to establishments having less than five workers and relates to the notices, registers, books, etc., which are to be kept by each establishment.

5. The laws on Sunday rest in industrial and commercial establishments.

6. The laws concerning the security and health of the workers in industrial and commercial establishments.

These laws prescribe measures insuring the sanitation of the workshops and the health and security of the workers; regulations for prevention of accidents and the standards for sanitation and safety in industrial establishments.

7. The laws concerning compensation for injuries resulting from industrial accidents.

The inspectors are charged with the investigation of certain cases of accidents, which are to be reported to the factory inspection department. The inspectors have power to enter establishments under their jurisdiction as well as to question the occupants of these establishments.

PROCEEDINGS, PENALTIES, AND FINES.

In cases of violations or infractions of the law, inspectors are to make a report which is communicated to the employers within 24 or 48 hours. Such a report is transmitted to the royal prosecutor who proceeds before judicial tribunals.

The following shows the various fines imposed:

Acts of March 6, 1818, January 29, 1863, August 16, 1887: Fine of 26 to 100 francs (\$5.02 to \$19.30): first repeated offense, fine of 100

to 1,000 francs (\$19.30 to \$193); second repeated offense within one year, fine not exceeding 2,000 francs (\$386).

Articles 14 and 17-C of the act of December 13, 1889; article 2 of the act of May 5, 1888; act of April 11, 1896; and article 4 of the act of May 25, 1905: Closing of work places in the dangerous trades.

Act of June 15, 1896: Fine of 26 to 100 francs (\$5.02 to \$19.30); fine of 26 to 500 francs (\$5.02 to \$96.50); fine of 26 to 200 francs (\$5.02 to \$38.60). If the offense is repeated within one year the fines are doubled.

Act of December 24, 1903: Fine of 5 to 25 francs (96.5 cents to \$4.83).

Act of July 17, 1905: Fine of 26 to 100 francs (\$5.02 to \$19.30); fine of 101 to 1,000 francs (\$19.49 to \$193); fine of 1,001 to 5,000 francs (\$193.49 to \$965), according to size of establishment; doubled for repeated offenses within five years.

Act of August 20, 1909: Fine of 26 to 1,000 francs (\$5.02 to \$193); repeated offenses within one year, fine of 100 to 1,000 francs (\$19.30 to \$193).

Parents and guardians of children unlawfully employed, fine of 1 to 25 francs (19.3 cents to \$4.83); doubled for a repeated offense.

ORGANIZATION.

The supervision of the labor inspection department is under the King, the Minister of Industry and Labor, and the director of the office of labor. All appointments of inspectors are made by the minister in the name of the King upon recommendation of the director of the department. Interpretations, amendments, and amplification of the law are frequently made, either by royal decrees or by ministerial circulars and decrees. The granting of important exceptions and exemptions from the law is also under the jurisdiction of the Minister of Industry and Labor and the director of the department, except individual cases which are passed upon by the inspectors and reported to the director.

CENTRAL ADMINISTRATION.

The department of labor constitutes the third section of the office of labor, and is divided into two main sections: (1) the central administration and (2) the provincial service.

The central administration consists of (a) the central administrative authorities, (b) the medical factory inspectors, and (c) the female inspectors.

The total budget of the whole department as constituted on July 1, 1912, and which has served for the budget of 1913, amounts to 360,000 francs (\$69,480).

The central administrative force consists of a chief inspector general, two general inspectors, two or more inspectors and deputy inspectors, and four editors for the reports, etc.

The inspector general and his assistants have the immediate supervision of all the provincial force, receiving from them bimonthly reports and generally following their work very closely.

The medical division of the department consists of a chief inspector, his two assistants, and two or more provincial medical inspectors. The duties of the medical inspectors are to enforce the decree of March 25, 1890, in relation to work in match factories; the decree of February 4, 1895, relating to rag-sorting places; the decree of December 31, 1894, relating to the manufacture of white lead and other lead compounds; the decree of May 13, 1905, on the use of white lead in the painting of buildings; the laws and decrees relating to vaccination of workers employed on certain dangerous stuffs, first-aid help for victims of accidents, women working within four weeks of their confinement, etc. They also supervise approved physicians in dangerous trades.

The section of female inspectors consists of two inspectors who have charge of the visiting of certain establishments where large numbers of women and children are working—the clothing, textile, and millinery industries, as well as certain mercantile and commercial establishments. At present there is only one female inspector.

PROVINCIAL INSPECTION SERVICE.

The whole Kingdom of Belgium is divided into 10 provincial districts, as follows:

District 1, with an office at Brussels, has one principal inspector, two assistants, and two delegated inspectors of the working class—a total of five inspectors.

District 2, with an office at Louvain, has one inspector.

District 3, with an office at Antwerp, has one principal inspector and two assistant inspectors—a total of three inspectors.

District 4, with an office at Ghent and consisting of eastern Flanders, has one chief inspector, three assistants, and two delegated inspectors of the working class—a total of six inspectors.

District 5, with an office at Bruges, has one delegated inspector.

District 6, with an office at Courtrai, has one inspector and one delegated inspector of the working class—a total of two inspectors.

District 7, with an office at Houdeng-Goegnies, has one assistant inspector and one delegated inspector—a total of two inspectors.

District 8, with an office at Mons, has one chief inspector, one assistant inspector, and one delegated inspector of the working class—a total of three inspectors.

District 9, with an office in Namur, has one inspector and one assistant inspector—a total of two inspectors.

District 10, with an office at Liège, has one chief inspector, two assistant inspectors, and two delegated inspectors—a total of five inspectors.

The inspectorial force of the department of labor at Belgium consists of the following:

Inspector general.....	1
Chief inspectors.....	¹ 2
Medical inspectors:	
Chief.....	(?)
Central.....	2
Provincial.....	2
Assistant inspector at central office.....	1
Provincial chief inspectors.....	5
Provincial inspector engineers.....	5
Assistant inspectors.....	12
Delegated inspectors.....	10
Female inspectors.....	2
Total.....	42

SALARIES.

The annual salaries of inspectors (as furnished the writer by the director of labor from an extract of the budget of 1913) are as follows:

First inspector general.....	10,000	francs (\$1,930.00)
Chief inspectors.....	9,000-10,000	francs (\$1,737-\$1,930.00)
Provincial chief inspectors.....	7,500- 8,500	francs (\$1,447.50-\$1,640.50)
Medical inspectors.....	6,500- 7,500	francs (\$1,254.50-\$1,447.50)
Inspectors.....	4,500- 6,500	francs (\$868.50-\$1,254.50)
Assistant inspectors.....	2,400- 4,000	francs (\$463.20- \$772.00)
Editors.....	2,400- 4,000	francs (\$463.20- \$772.00)
Delegated inspectors.....	2,200- 2,600	francs (\$424.60- \$501.80)

One of the peculiarities of the law in Belgium is that inspectors are appointed without any civil-service examination and their salaries, promotion, and perquisites are entirely at the will of the King, the Minister of Industry and Labor, and the director of labor. The inspectors are not entitled to a pension, but are usually given one, according to the system in vogue in Belgium, after 20 years of service. One inspector was given a pension of 2,000 francs (\$386) after 20 years of service. Provincial inspectors are supposed (article 11 of the decree of Oct. 22, 1895) to do actual inspection work during 150 to 200 days and permanent delegated inspectors during 50 to 100 days.

Inspectors are given 15 days' vacation with full pay and are also entitled to four days' sick leave with pay. The female assistant inspector, gets 1,800 francs (\$347.40) per year.

Inspectors are entitled to traveling expenses when they go farther than 2 kilometers (1.24 miles) from their residences. The traveling expenses of the central administrative inspectors are fixed by the minister.

¹ Including the chief medical inspector.

² Included in "chief inspectors."

SELECTION, APPOINTMENT, AND PROMOTION.

As already noted, there is no examination for the appointment of inspectors, nor is their selection and appointment, as well as their promotion, hedged around with so many precautions and formalities as in other countries. The appointive power is nominally in the hands of the King; but practically it is under the jurisdiction of the Minister of Labor, who may or may not consult the director of the office of labor and the chief inspector. The four classes from which the appointments are made are as follows: Physicians for the medical division, engineers for the inspectors and chief inspectors, while the two other classes are taken from either employers or workers at the will of the minister.

In the mining division of inspection there are not fewer than 39 workmen delegates and nearly twice as many engineers. In the labor inspection department, however, there are only five inspector delegates who have been workingmen.

There seems to be great competition for the position of inspector and many well-to-do and prominent persons seek for these positions. Two inspectors in Brussels own automobiles and use them to make inspections in their respective districts. The writer was informed that there are a number of other inspectors who are likewise able to afford such luxuries, and certainly not from their meager salaries. One of the inspectors in Brussels is the son of the public prosecutor.

WORK OF INSPECTORS.

The reports published by the office of labor, entitled "Annual Reports of the Inspection of Labor" (*Rapports Annuels de l'Inspection du Travail*), although voluminous, do not contain statistical data as to the number of establishments and workers throughout the country, nor is there to be found a general statistical table of all the work of the inspectors or of the central office. Each annual report simply consists of the reports of the ten inspectors in the ten inspectorial districts, of the female inspectors, and of the medical inspectorial division. The report is divided into several sections, as follows:

Establishments visited; work of protected persons; Sunday rest; workshop regulations; payment of wages, etc.; health and security of workers; industrial accidents; establishments which are dangerous, unhealthy, or unsuitable. There are usually two short sections which contain the report on open air pits, etc., and on tests of receptacles for compressed or liquified gas.

The reports are not always full, nor are the inspectors required to make them uniform. Thus, it happens that one inspector gives some sections of his report in full and gives a short account of every violation found, fines imposed, etc., while others skip over the matter and report briefly on other subjects. Again, some of the inspectors give

a detailed account of the different categories of protected persons, while the statistics of others are meager. In the report covering 1911, upon which the following figures are based, the inspector of the fifth district has even omitted to state the number of persons working in his district in the establishments inspected.

The number of industrial establishments subject to inspection has been estimated by Prof. Mahaim¹ to be over 80,000, with an industrial population of over 600,000. The number of establishments is probably much larger, as in this number are not included home shops, which are especially dangerous to health, and which are also supposed to be under the supervision of the inspectors.

With a force of thirty odd inspectors it is hardly possible to cover much ground, especially since the inspectors have so many other duties to perform. According to the report of 1912 the inspectors of the 10 districts did the following work in 1911:

District.	Inspe- ctors.	Estab- lish- ments visited.	Persons in in- spected establish- ments.	Applica- tions for authori- zation dis- posed of.	Acci- dents reported.	Viola- tions reported.
First.....	5	2,148	30,250	411	14,282	156
Second.....	1	581	18,595	75	4,796	.....
Third.....	3	2,408	76,740	187	14,761	.....
Fourth.....	6	2,738	95,228	201	10,208	.....
Fifth.....	1	405	10,602	67	2,872	17
Sixth.....	2	1,250	39,188	121	.....	.....
Seventh.....	3	1,236	36,069	78	18,961	.....
Eighth.....	3	1,044	31,548	51	6,970	.....
Ninth.....	2	1,503	23,462	72	.....	.....
Tenth.....	5	1,909	44,120	310	15,387	.....

In reading over the reports of the inspectors one is struck with the large number of accidents which are reported to the inspectors, and with the comparatively small number of investigations made by them. Some of the inspectors made only from 18 to 25 investigations, while the total number of accidents in their districts was above 10,000. Some of the inspectors give in detail the judicial proceedings and penalties which are imposed for each violation, and from their report it seems that 3 francs (57.9 cents) and 5 francs (96.5 cents) are the fines frequently imposed for even serious violations.

Thus, an inspector of the second district reports a judicial decision on a violation of the law requiring the authorization of dangerous establishments. The fine in this case was 20 francs (\$3.86); another establishment which had no authorization was fined 5 francs (96.5 cents).

The inspector of the fourth district reports that the penalties imposed for violations of the law prohibiting children under 12 years of age from working varied between 1 franc (19.3 cents) or one day of

¹ Note Sur l'Inspection du Travail en Belgique, by Prof. E. Mahaim. Liège, 1908.

imprisonment and 10 francs (\$1.93) or two days' imprisonment. In one corset factory, where three children under 12 years of age were employed, the fine for each violation was 1 franc (19.3 cents) or one day of imprisonment and even this was suspended for one year. In this district about 30 such violations were reported. Five of the employers were fined 10 francs (\$1.93) each and all the rest from 1 to 7 francs (19.3 cents to \$1.35). The penalties imposed upon those found violating the law prohibiting night work for protected persons was generally 5 francs (96.5 cents). Only rarely does one find fines as high as 40 francs (\$7.72).

WORK OF THE FEMALE INSPECTORS.

In 1911 there were two female inspectors, but at present there is only one. The work of the female inspectors is not limited to a certain territory, but covers practically the whole Kingdom and extends also to commercial and mercantile establishments. Two hundred and sixty-eight mercantile establishments employing 3,497 persons were inspected, besides 818 industrial establishments. This shows a great activity on the part of these inspectors, with over 500 inspections to the credit of each. The industrial establishments inspected were those manufacturing clothing, textiles, and paper boxes; also similar establishments in which women and children were employed.

WORK OF THE MEDICAL INSPECTORS.

There were 4 medical inspectors besides the chief inspector, Dr. Glibert, in 1911. They had under their supervision 163 physicians.

A large number of physical examinations have been made of workers employed in dangerous trades. The examinations are very thorough and the report gives in detail the results of the examinations made by the medical inspectors. The medical inspectors have also made a very thorough examination of the temperature and humidity of various establishments and their effect upon the workers. Two hundred and twelve visits were made by inspectors in 124 rag-picking establishments and the persons working therein were vaccinated. Ten of the 13 match factories were visited. Inspectors report a good organization of the medical examination of workers in white-lead factories. In seven white-lead factories in Brabant and Flanders the physicians made 2,574 monthly examinations; 735 workers were examined and 115 workers were found to have symptoms of plumbism.

The medical inspectors also have jurisdiction over house painters, over introduction and maintenance of first-aid facilities in industrial establishments, and over disinfection in certain especially dangerous establishments.

METHODS OF INSPECTION.

The large number of industrial establishments which are to be found in Belgium and the wide scope of the inspectorial functions, coupled with the very small number of inspectors, has drawn the attention of all those specially interested in the enforcement of labor laws to the practical impossibility of efficiently administering the labor laws in the country and has led M. Louis Varlez, to say that "all agree that the application of the labor laws in Belgium leaves much to be desired."

Belgium is an intensive industrial Kingdom with a larger number of industrial establishments to the area occupied than any other State in Europe. With the present organization of the labor department, a large territory like that of Brussels is covered by only five inspectors, who can not devote to actual inspection more than a few hours a day, because so much of their time is taken up with clerical duties and other functions included in the scope of their work.

STANDARDS USED.

The standards of sanitation used by the inspectors in their inspection of the factories and industrial establishments are based upon the general regulation of March 30, 1905, which authorizes the Government to prescribe certain measures for the sanitation of workshops and for the security of workers in industrial and commercial establishments which are classed as dangerous, unhealthy, or unsuitable. These measures and standards may be imposed upon the workers as well as upon the employers.

The following standards are more or less specific:

HEALTH AND SAFETY OF WORKMEN.

General regulations of March 30, 1905, prescribing the measures to be taken to protect the health and safety of workmen in the industrial and commercial establishments affected by the law of December 24, 1903.¹

SECTION I.—REGULATIONS FOR EMPLOYERS OR PERSONS IN CHARGE.

ART. 2. Damp premises shall not be used regularly as workshops.

ART. 3. Each workman indoors shall be allowed at least 10 cubic meters (353 cubic feet) of space.

The workrooms shall be at least 2.5 meters (8.2 feet) high. They shall at all times be properly ventilated. For this purpose provision shall be made to allow fresh air to enter and foul air to be removed at the rate of at least 30 cubic meters (1,059 cubic feet) per hour per workman. In workrooms of establishments in which the work is especially unhealthy, the renewal of air shall be at the rate of at least 60 cubic meters (2,119 cubic feet) per hour per workman. The ventilation shall be accomplished by means that will not result in any inconvenience to the workmen.

¹ Translated in the United States Bureau of Labor Statistics from *Lois et règlements concernant la police du travail et le régime des établissements classés*. Ministère de l'Industrie et du Travail. Office du Travail, 1909, p. 124.

However, establishments already in operation at the time of the publication of the present regulations, whose workrooms can not be so remodeled as to comply with the above regulations, may be retained as they are, provided:

(1) That steps shall be taken to insure the best possible ventilation under the conditions existing.

(2) That the number of workmen employed there shall not be increased.

(3) That poisonous substances shall not be handled there and that no further conditions arise at any time that are seriously unhealthy.

Furthermore, in the year following the publication of the present regulations, employers in these establishments shall submit to the labor inspector a statement in writing of the kind of industry carried on, the place where it is located, and the number of workmen employed.

This exception shall apply to classified establishments that are already in operation, only until an adverse decision is made by the authority having jurisdiction.

ART. 4. Whenever work is suspended and circumstances permit the air shall be renewed by forced circulation of the air.

ART. 5. All necessary provisions shall be made for preventing vapors, steam, gas, or harmful dust from spreading in the workshops.

ART. 6. Workshops shall be properly lighted.

During the day they shall receive adequate daylight. But artificial light may be employed in case the location of adjacent structures or the exigencies of the industry prevent the shops from receiving sufficient daylight for the character of the work to be accomplished.¹

ART. 7. Artificial lighting must furnish a steady light of adequate intensity. Necessary precautions shall be taken to prevent the lighting from overheating the rooms or vitiating the air.¹

ART. 8. During the cold season workrooms shall be properly heated.

In summer they shall be protected as much as possible from the extreme heat.

ART. 9. Workmen shall be protected from excessive radiation of lighting systems, fireplaces, furnaces, and all other sources of heat.

ART. 10. Workrooms and their appurtenances shall be kept in a good state of repair and cleanliness.

ART. 11. Rubbish, waste from manufacturing and from raw materials, sweepings, and in general all left-over materials that will ferment, decompose, or be harmful in any manner whatever, shall be removed from the workshops daily, put aside, and regularly taken away, burned, or buried in such a manner as to prevent any harmful results.

ART. 12. Workrooms shall be cleaned without raising any dust and as far as possible outside of work hours.

ART. 13. In workrooms where any considerable amount of liquids is apt to be spilled, the floor shall be impermeable and thoroughly drained.

ART. 14. Where the work is of an unhealthy character, workmen shall wear a suit of working clothes which they shall remove before leaving the establishment.

A dressing room with washstands shall be provided for them.

Employers or persons in charge of an establishment shall forbid their workmen to take any food into workrooms in which poisonous substances are handled.

ART. 15. Water-closets as well as urinals shall be decently put up and properly maintained. They shall be so arranged as to prevent any odors from penetrating to the workrooms.

There shall be at least one water-closet for every 25 persons.

ART. 16. All accessory installations which might form sources of infection, shall be so constructed and maintained that their fumes can not lead to injurious consequences.

¹ According to a ministerial decision of Feb. 22, 1908, employers or managers are held responsible for compliance with the provisions of articles 6, 7, 42, and 44 of these regulations.

ART. 17. A good quality of water or, in its absence, a wholesome drink (*infusion hygiénique*), shall be provided for employees.

ART. 18. All water used in workrooms, whether in pulverizing or in sprinkling, shall be unpolluted.

PROTECTION AGAINST ACCIDENTS.

Employment in places which are liable to contain dangerous gases.

ART. 19. Workmen shall not be permitted to go into shafts, cisterns, reservoirs, and other similar places until they have ascertained that no suffocating, injurious, or inflammable gases are present.

In case such gases exist, the air must be purified and the removal of the danger confirmed before entering.

Furthermore, workmen that are employed in such places shall have effective supervision and shall be relieved as often as circumstances demand.

They shall wear a safety rope around the body, either at the waist or under the arms, which shall communicate with the outside and make it possible for them to be drawn up in case of necessity.

The supplies and crew necessary to effect a rescue must be located close to the operations and during their entire duration.

Protection against injury from machines and their mechanical parts.

ART. 20. When motors are located in rooms not used for work, workmen shall be forbidden access to these places unless their work takes them there.

Motors located in workrooms not forming integral part of machine tools shall be guarded by railings or other safety appliances.

In all cases the pits for flywheels and pulleys, as well as moving parts of motors, shall always be surrounded by railings firmly supported and braced (*gardes-corps avec plinthes de butée*) or proper protective inclosures to protect employees against accidents.

Internal explosion engines must not be started by means that will compel workmen to work under the arms of the flywheel.

ART. 21. Necessary precautions shall be taken in regard to power transmission as well as to projecting and moving parts of mechanisms when these might give rise to accidents.

Gearings, shaftings, pulleys, cables, belts, chains, and other parts in motion, also projecting keys, screws, bolts, and any other similar pieces, shall be so placed, covered, or inclosed as to avoid any danger they might offer to the safety of workmen.

Lines of horizontal shafting, also pulleys, chains, cables, and belts, placed but a short distance from the ground and over or under which employees might be obliged to pass, shall in all cases be covered for the full length of the passageway.

ART. 22. Provision shall be made to prevent belts, thrown off their pulleys, from resting on transmission shafts in operation, or from coming in contact either with these shafts or with any other part whatever connected with their rotary motion.

During operation, cables, chains, and belts connecting machines, apparatus, or transmissions may not be repaired unless their complete isolation from any moving mechanical part whatever has been ascertained.

During operation the handling of belts is forbidden, whether to throw them on or off their pulleys or to transfer them from a fixed pulley to a loose one or, vice versa, from a loose pulley to a fixed one.

However, the measures prescribed by paragraphs 1 to 3 do not apply: (1) To belts whose very slow motion and position in relation to dangerous parts of machinery precludes every possibility of accident; (2) to the throwing on or off of belts running differential pulleys when these belts are within the reach of workmen and are in a vertical or nearly vertical position.

When power is transmitted by means of electricity, provision shall be made to protect workmen from electric currents.

ART. 23. Provisions shall be made to avoid the dangers that might arise from handling cables and chains connecting apparatus and power transmissions in motion.

ART. 24. Machine tools must be provided with proper appliances to stop them in the least possible time, independently of the motor.

These appliances shall be kept in operation during the whole duration of the suspension they produce, so as to prevent the arrested machine or mechanical part from unexpectedly resuming its motion. As far as possible such appliances shall be placed within the reach of the hand of the workman.

ART. 25. The cleaning or repairing of parts of machines, apparatus, and transmissions while they are in operation is forbidden when these parts may cause accidents or when they are close to dangerous mechanical parts in motion.

The tightening of keys, bolts, screws, or any other similar parts while the parts bearing them are in motion is forbidden.

The oiling of dangerous parts of transmissions, of motors, or other machines in operation is forbidden unless every necessary precaution for safety has been taken.

ART. 26. As far as possible machines with cutting tools shall be so placed as to prevent workmen at their places of work from involuntarily coming in contact with the cutting parts.

ART. 27. Passageways in workrooms shall be of adequate width and height to prevent workmen from being injured by machines or transmissions in motion.

ART. 28. Employees obliged to remain or to move about near machines or transmissions in motion must wear close-fitting clothing. In this case they shall further have the head covered so as to prevent the hair from being caught by the mechanisms.

Dressing or changing or leaving clothing in the immediate vicinity of machines or transmissions is forbidden.

ART. 29. Machines, apparatus, or transmissions which on account of their position could not cause accidents under normal conditions of work, but which might become dangerous during the progress of the exceptional work of installation, either of masonry or of any other kind of work in connection with it, shall be properly protected during the whole duration of such work.

Protection against injuries from fragments or flying materials and in general against injuries from all dangerous materials.

ART. 30. As far as possible mechanical parts that are run at high speed shall be covered so that in case of breaking their fragments shall not injure employees.

It is forbidden to give such speed of rotation to grindstones and turbines as to endanger their resistance to breakage.

Furthermore, no workman may be employed near a flywheel or near any other engine revolving at high speed unless his work demands it.

ART. 31. Gratings or other appliances shall protect workmen against injuries from fragments or flying pieces thrown off from the material worked upon.

Appropriate glasses shall be provided for workmen employed at work apt to produce the bursting or flying off of material.

ART. 32. Necessary precautions shall be taken to protect employees from contact with corrosive, burning, or injurious substances.

Special precautions shall be taken to prevent the flying off of such substances and to protect workmen from injuries in case this should occur.

Hoisting apparatus.

ART. 33. Hoisting apparatus shall be constructed of material of good quality and of proper strength.

They shall be erected so as to assure perfect stability.

They must be provided with brakes, catches, safety gears, or other safety appliances preventing the unexpected descent of loads.

They shall have affixed a statement of their power and, if they are used for passenger service, of the number of persons that can be carried at one time without danger.

ART. 34. Necessary provisions shall be made to prevent the fall of loads or parts of loads handled by such apparatus.

ART. 35. If the openings intended for the passage or the handling of loads are dangerous for employees, they shall be guarded by railings or other effective means of protection against the fall of workmen and as far as possible these appliances shall be operated automatically.

Inspection of material.

ART. 36. Employers or persons in charge of establishments shall frequently inspect, or have inspected, hoists, elevators, cranes, chains, ropes, cables, and other similar apparatus, so as to ascertain the solidity and state of preservation of the material employed.

Every piece condemned or of doubtful solidity, shall be discarded and removed so as not to be available for renewed use.

Shafts, cisterns, basins, reservoirs.

ART. 37. All shafts, cisterns, basins, or reservoirs that are dangerous for workmen, shall be properly covered or surrounded by firmly erected railings.

Stairs, ladders, foot bridges, galleries.

ART. 38. Stairways shall be entirely secure in regard to solidity, stability, and safety. They shall be provided with strong steps of adequate height.

Necessary provision shall be made to prevent workmen from falling from the staircases.

Movable stairs and ladders shall possess all the necessary solidity and rigidity. They shall be supported so as not to upset or slip. Their length shall be adequate and provisions shall be made to enable employees to pass in perfect safety from these stairs or ladders to the floors to which they lead or vice versa from these floors to the stairs or ladders.

It is forbidden to use ladders with missing, broken, cracked, or loose rounds.

Foot bridges, galleries, or other similar means of communication shall be solidly built. They shall have adequate width, shall be provided with railings of proper height and shall have every provision for safety. Measures shall be taken to prevent them from swaying under the effect of travel upon them.

Handling and transporting heavy, bulky, or dangerous objects indoors.

ART. 39. Raw materials, merchandise, manufactured products, or any objects whatever which, during their handling or transportation could cause accidents on account of their weight, their great bulk, their fragility, or in general on account of their nature, shall be handled and transported as far as possible with the aid of appropriate apparatus for avoiding danger.

ART. 40. Special measures shall be taken to prevent accidents that could be caused by the transportation of corrosive, burning, or injurious material.

Precautions against fires.

ART. 41. Necessary precautions shall be taken to prevent fires.

The appliances shall be arranged so as to assure the rescue of employees in case of disaster.

Exits intended for workmen's egress from workrooms must never be obstructed by merchandise, material in storage, nor by objects of any sort.

Lighting.

ART. 42. There must be sufficient light to make it possible to distinguish machines and transmissions as well as all other apparatus of a dangerous character.

All places where employees are performing any work whatever, as well as places which they are obliged to traverse, must be sufficiently lighted so that dangerous places can be easily seen.¹

ART. 43. The lighting installations and apparatus shall be so constructed and maintained as to be entirely safe.

When workrooms are lighted with petroleum or any other mineral oil or extraction, provision shall be made to prevent the fall and explosion of lamps. The use of petroleum or any other mineral oil or extraction in portable lamps called "crassets" and in all other dangerous apparatus is forbidden.

ART. 44. It is forbidden to use fire or lamps other than safety lamps, under any pretext, in places where inflammable or explosive gases, vapors, or dust might exist in spite of the precautions taken.¹

Precautions required during the periods of rest of workmen.

ART. 45. Workmen are forbidden to rest on roofs, scaffoldings, masonry of boilers, under arches whose supports have been recently removed, and also in the immediate vicinity of shafts, excavations, furnaces, machines or transmissions, passageways for transportation, and in general in dangerous or unhealthy places.

Alcoholic beverages forbidden.

ART. 46. The bringing of distilled alcoholic beverages into workshops or workyards and their outhouses is forbidden.

SECTION II.—REGULATIONS FOR WORKMEN.

ART. 47. Workmen employed in workrooms or at work especially unhealthy must wear a suit of working clothes which they shall remove before leaving the establishment. They are forbidden to take food into workrooms where poisonous substances are handled.

ART. 48. Workmen are forbidden to enter shafts, cisterns, reservoirs or any other similar places where suffocating, injurious or inflammable gases might exist until after they have ascertained that such gases are not present.

In case such gases exist, the air must be purified and the removal of the danger confirmed before entering.

Furthermore they are forbidden to enter such places without wearing a safety rope around their body, either at the waist or under the arms, which shall communicate with the outside and make it possible for them to be drawn up in case of necessity.

ART. 49. Workmen are not permitted to enter engine houses unless their work makes it necessary.

They are forbidden to work under the arm of the flywheel in starting gas and oil engines.

ART. 50. Workmen are not permitted to repair cables, chains and belts connecting machines, apparatus or transmissions in operation, until they have ascertained that they are not connected with any moving mechanical parts.

Workmen are forbidden to handle belts while in motion, whether to throw them on or off their pulleys or to transfer them from a fixed pulley to a loose one or vice versa from a loose pulley to a fixed one.

However, the prohibition of paragraph 2 does not apply: (1) To belts whose very slow motion and position with regard to the dangerous parts of machinery precludes every

¹ See footnote on page 260.

possibility of accident; (2) to the throwing on or off of belts running differential pulleys when these belts are within the reach of workmen and are in a vertical or nearly vertical position.

ART. 51. Workmen are required to notify employers or their representatives of all defects that they may discover in the tools or the material provided for them.

ART. 52. Workmen are also forbidden:

A. To remove or alter, without good reason, protective devices against accidents and to remove supports or props upon their own responsibility.

B. To clean or repair parts of machines, apparatus, and transmissions while they are in operation and when these parts may cause accidents or when they are close to dangerous mechanical parts in motion.

C. To tighten keys, screws, bolts, or any other similar pieces before the parts bearing them are absolutely motionless.

D. To oil dangerous parts of transmissions, motors, or other machines in operation, unless every necessary precaution for safety has been taken.

E. To wear loose-fitting garments while working near machines or transmissions in motion. In such cases workmen are forbidden to work without having first covered the head so that the hair can not be caught by the mechanisms.

F. To dress, to change or leave clothing in the immediate vicinity of machines, apparatus, or transmissions.

G. To remain near a flywheel or other mechanism revolving at high speed unless the work demands it.

H. To undertake work that is liable to give rise to explosions or flying materials, without having their eyes protected by glasses furnished them.

I. To move about or remain unnecessarily under moving or suspended loads.

J. To use ladders with missing, broken, cracked, or loose rounds.

K. To transport corrosive, burning, or injurious substances without following the special directions prescribed by the person in charge of the establishment, in compliance with article 40 of the present regulations.

L. To use under any pretext, fire, or lamps other than safety lamps in rooms and places where inflammable or explosive gases, fumes, or dust might be present in spite of the precautions taken.

M. To rest on roofs, scaffolding, masonry of boilers, under arches whose supports have been recently removed, and also in the immediate vicinity of shafts, excavations, furnaces, machines, or transmissions, passageways for transportation, and in general in dangerous or unhealthy places.

N. To bring into workshops or workyards and their appurtenances, distilled alcoholic beverages.

Other royal and ministerial decrees give general standards of safety and sanitation for especially dangerous industries. These standards, however, are not definite and consist simply of general rules and regulations to prevent accidents and to insure the safety and health of the employees.

FORMS USED.

The inspectors use for their reports a number of approved printed forms, the filling out of which takes up several hours a day and greatly diminishes the time which they are able to spend in field work.

One of the inspection forms contains the following items:

Arrondissement ———. Commune ———.

MINISTER OF INDUSTRY AND LABOR, OFFICE OF LABOR.

INSPECTION OF WORK.

Visit—date ———

No. ———

	Nature of the sections of the establishment.
Firm.....	A.....
Address.....	B.....
Name of director.....	C.....

STATISTICS OF THE WORKING PERSONNEL.

Total number?.....
 Total number of workers in each industry?.....
 Children from 12 to 14 years—Boys?.... Girls?....
 Young persons from 14 to 16 years—Boys?.... Girls?....
 Females from 16 to 21 years?.....
 Females over 21 years?.....
 Day and night shift?.....
 Exclusive of night shift?.....

EXECUTION OF THE LAWS AND RULES.

Laws and royal decrees:

- a. Work of women, young persons, and children.
 Law of December, 1889.
 Royal decrees of December 26–31, 1892; September 22, 1896; November 4, 1894, and July 28, 1906.
 Royal decrees of February 19 and August 5, 1895, concerning particularly industries injurious to health.
- b. Sunday rest.
 Law of July 17, 1905.
- c. Rules of work.
 Law of June 15, 1896.
 Royal decree of September 4, 1896.
- d. Payment of salaries and measurement of work.
 Law of August 16, 1887 (completed by the laws of June 15 and 16, 1896).
 Law of July 30, 1901.
- e. Health and safety of the workers.
 Royal decrees of March 30 and 31, 1905; November 20, 1906, and September 21, 1894.
- f. Control and authorization of dangerous, unhealthy, or obnoxious establishments.
 Royal decree of January 29, 1863, and decree of authorization.

Special observations:

(Signature) ——— ———.

There are also a number of forms for reports of violations of each of the laws, so that each violation of child labor, female labor, and

other laws must be reported on special forms. The form is the same as is used for accident reports.

The following form is used as a medical certificate in cases of accidents:

MEDICAL CERTIFICATE.	
The undersigned (1)..... being examined (2)..... after the accident occurred to him..... declares:	
(1) That the disability	{ is protracted (3)..... appears to be protracted.....
(2) That the accident produced the following injuries (4).....	
(3) That the injured person is taken care of (5).....	
Acted upon, the, 19...	
(Signature) ——— ———.	

All applications for authorization of establishments which are dangerous, unhealthy, or obnoxious are made on a special form, as follows:

LABOR INSPECTION.	
<i>Instruction for application for authorization in dangerous, unhealthy, or obnoxious trades.</i>	
MINISTER OF INDUSTRY AND LABOR, OFFICE OF LABOR.	
Report of No. following the correspondence of the governor of of No.	
Nature of the establishment.....	
District in which establishment is situated	
Name (first name) and address of complaining authority	

In case of violation of any law, the inspector fills out a special form for that violation, informs the owner of his finding, and demands its remedy.

The methods which are used by the inspectors in their work differ according to the qualifications of the inspectors and their functions.

The delegated inspectors of the working class are usually sent to look for violations of the law prohibiting Sunday and night work, and to make such other inspections as do not require any technical training. Some of the workmen delegated inspectors are not obliged to make more than 18 inspections per month, and the writer was informed that some of them are employed at other official or nonofficial work.

The assistant inspectors who are not technically trained men inspect as a rule establishments where a large number of women and children are employed, where they endeavor to discover violations

of child labor acts and other infractions of the law relating to the work of protected persons.

The inspectors who are technically trained usually inspect establishments regarded as dangerous, unhealthy, or obnoxious. Their time is also much occupied with applications for the authorization of new establishments, since each application requires much work and several inspections of plans and specifications as well as of the establishment itself. The inspectors who were interviewed did not seem to have a special knowledge of dangerous trades or of chemistry, and in the several chemical establishments which the writer inspected with them they were dependent upon the information given to them by the technical superintendents and managers of the plants.

The usual routine procedure is for the inspector to first announce his authority by presenting his card in the office and showing his card of identification, if the employer requires proof of his authority. The inspector then reviews the registers and notices which are affixed to the walls. He may be accompanied by a representative of the employer or he may make his inspection alone. The inspector then compares the number of children and young persons with the corresponding entries in the registers, asks such question as may be necessary to fill in the statistical part of the report, and finally proceeds to make an inspection of the plant itself. Although the inspectors have the right to interrogate the employers as well as the employees, it was stated that they rarely make use of this right.

The main inspections of the dangerous trades such as chemical factories are made by the medical inspectors who are instructed to pay special attention to the occupational diseases. The functions of the medical inspectors, however, are so broad and diversified that it is impossible for the four or five inspectors in the Kingdom to cover all the dangerous trades within their jurisdiction, because much of their time is occupied by special investigations which are carried on under the supervision of the chief medical inspector and form valuable contributions to industrial hygiene.

The medical inspectors not only have general supervision over all dangerous establishments but also have charge of the medical first-aid installations in factories, of the approved physicians, of vaccination in special establishments, and many other such matters, which does not leave much time for them to spend in real inspection work. All inspectors, medical or otherwise, are supposed to make bimonthly reports to the central office, giving in detail their inspectorial and other activities. Abstracts of these reports are published monthly by the bureau of labor.

The writer endeavored to get the opinion of several members of Parliament as to their view of the work of the inspectors. There seemed to be a tendency among the representatives of the Labor

Party to deny the efficiency of the labor inspectors, and especially to minimize the value of their work, in view of the small number of inspectors and the defective organization of the department. Parliamentary representatives of the Labor Party are constantly making interrogations, criticising the work of the labor department, and introducing projects for the reorganization of the department. The dominant party, while admitting the insufficient number of inspectors, does not, however, seem to regard the protests of the Labor Party as serious and there did not exist at the time this study of factory inspection was made, any project either for the increase of the inspectors or for the reorganization of the department.

SWITZERLAND.

BEGINNINGS AND EXTENT OF PRESENT FACTORY LEGISLATION.

Swiss Federal labor legislation begins with the factory law enacted March 23, 1877. While this is the beginning of Federal legislation for the protection of workers, there were many earlier attempts to enact labor legislative measures in the cantons. Thus, we find in 1815 in Zurich "an order in regard to the work of minors in factories generally, and on the spinning machines especially at which children are forbidden to work before their tenth year, nor more than 12 to 14 hours daily, nor at night." In the same year there was also enacted an order in Canton Thurgau in regard to the school attendance and supervision of children working in factories.¹

Other cantons slowly followed the example of Zurich and Thurgau. In 1842 a factory police law was proposed in Aargau, but no law was enacted. In 1848 there was enacted "a law in regard to work in spinning factories in Canton Glarus, and in 1853 a law as to factory children in St. Gall." In 1859 Zurich again enacted a very comprehensive factory law, which since that time has served as an example in labor legislation to other cantons. This law is specially important in view of the fact that under it an inspectorial commission was for the first time appointed for the administration of the factory law. Between that date and 1878, the date of the enactment of the Federal factory law, a number of States enacted laws for the protection of workers; but all these laws applied only to the area of their cantons, and differed much in their extent, in their execution, and in their spirit.

There was great divergence in the provisions, especially those relating to the work of children. In Aargau 13 years was the age limit, while in Schaffhausen it was 12. In Bern even 7-year-old children could work in the phosphorus factories, while in Nidwalden no child could work before the age of 18. The protected persons in Schaffhausen were the children between 12 and 14 years, and young persons between 14 and 16 years; in St. Gall children under 15; in Zurich children between 12 and 16 years; and in Aargau and Basel Land children of 13 to 16 years; while in Glarus, Basel City, and Ticino all workers were included in certain provisions of the law.²

One of the first cantons to enact a comprehensive factory law and administer the same through factory inspectors was Canton Glarus.

¹ Die Arbeiterschutz-Gesetzgebung, Dr. J. Landmann, p. 19.

² Bücher und Bauer in Article Arbeiterschutzgesetzgebung (Schweiz), in Conrad's Handwörterbuch der Staatswissenschaften.

In this State a factory law was enacted in 1864. This law provided for a normal workday of 12 hours for all workers, prohibited night work, excluded women for six weeks after confinement, and organized an inspection service.

At first it was intended to create an inspectorial commission consisting of the canton official, a chemist, and a mechanic. This attempt at a commissional inspection administration lasted until 1867; but it was difficult to find the proper persons for the filling of the positions. It was then that Dr. Fridolin Schuler, a young liberal physician, who had before that interested himself in the enactment of the factory law, was appointed as the chief of this inspectorial commission. Henceforth, the history of factory inspection not only in Glarus but in all Switzerland is deeply interwoven with the life history of Dr. Schuler, who served as factory inspector from 1867 to 1901, when he retired at the age of 70 years.

Regarding the difficulties of the administration of the factory law at its inception, Dr. Schuler says: "We were between two fires. Some of the employers regarded us as a nuisance and self-appointed watchmen over the factory owners. The workers regarded me as a slave of the factory owners, as a renegade, and as one who had sold the interests of the working class to the employers."¹

This condition did not last very long, however, according to Dr. Schuler, and soon the employers, as well as the workers, changed their opinions and came to the conclusion that the activity of the factory inspectors was not against their interests.

Owing to the divergence of the cantonal factory legislation, there was in the sixties and seventies much agitation for a federal labor law which would limit the hours of labor of adults as well as of children, and would protect the workers' life and health. There were a number of projects which, however, failed of enactment. At last a project for a new factory law by Federal Councilor Scherer was published and a commission was appointed to take testimony and investigate the matter. The commission consisted of three cotton-mill owners; the president of the factory inspection of Glarus; one worker—a mechanic from Zurich; five officials acquainted with industrial conditions; several cantonal officials; one physician, Dr. Vogt, professor of hygiene in Bern; and Dr. Schuler, factory inspector of Canton Glarus.

The debates on every section of the proposed law were lively and at times very bitter. In 1875 the project for a factory act, as passed by the commission experts, was published with a few amendments. It was then given over to the Federal Council, and after much discussion was passed on March 23, 1877, and became a law on January 1, 1878.

¹ Erinnerungen eines Siebenzigjährigen—Schuler.

The law of 1877 made provisions not only for the protection of workers in factories, but also for the enforcement of the provisions of the law by the cantonal governments, and for the administration of the law and supervision over its enforcement by federal factory inspectors.

The task of choosing the proper persons for the first inspectors was quite a difficult one, and was given over to Dr. Heer, who was previously at the head of the government of Canton Glarus. According to Schuler's "Erinnerungen," there were more than 100 candidates for the positions, among whom there were military men, professors, clergymen, directors of factories, physicians, etc. Owing to his reputation as a physician, as a factory inspector of 10 year's experience, as the man who accomplished good work in Canton Glarus, and was at the same time a member of the commission of experts on the proposed law, Dr. Schuler was urged and at last agreed to accept the position of inspector. The other two inspectors appointed were Mr. Klein, a former State councilor of Basel and Mr. Nuesperli, the head of a small mechanical workshop, a graduate mechanic and a former worker in London and Paris, where he belonged to the "International" (International Workingmen's Association). Owing to his experience and superior knowledge, Dr. Schuler was practically at the head of this inspectorial force, although he was assigned to the first district, and the provisions of the law put all three inspectors on an equal basis.

The first work of the three inspectors was to make an inspectorial trip together through the whole of Switzerland, a trip which lasted nine months and was of great benefit to the inspectors in their official work. It was also instrumental in securing a uniform enforcement of the law throughout the country. Among the incidents of this first inspectorial trip were the following:

One factory owner met the inspectors with the assurance that he was doing special welfare work for his child workers and had even appointed a teacher for them. He proudly took the inspectors to his school, which was found to be a dark cellar, selected as the owner stated because of its coolness. Here the children were given instruction during the midday pause. At another factory the inspectors were struck with the alternate singing and silence of the whole working force. The singing was said by the owner to show how happy the workers felt at their work. Just as he was going out from the factory Dr. Schuler noticed a sign, on one side of which there was written the word "Canto" (sing) and on the other the word "Silencio" (silence). He then understood the reason for the alternate singing and silence of the employees. In some places the inspectors met with great opposition, and had to threaten or bring police offi-

cers. In one they were met with empty factories, as the workers were given a holiday when the presence of the inspectors became known.

The first factory inspectors regarded their positions as very important, and Dr. Schuler was indefatigable in his work of inspection and in his investigations in regard to the effects of industrial processes upon the health of the workers. Being a physician, he was interested in the subject of industrial hygiene, made several special investigations of dangerous trades and processes, published a large number of monographs on industrial hygiene, was instrumental in the project for the revision of the factory acts, and was the leading spirit among the other inspectors, who followed his example and his methods.

SCOPE OF THE FEDERAL FACTORY LAW.

The Federal factory laws at present (September, 1913) in force are based upon the following:

1. The factory law of March 23, 1877.
2. The employers' liability laws of 1881, 1887, and 1905.
3. The phosphorus match law of November 2, 1898.
4. The law on payment of wages, etc., June 26, 1902.
5. The Saturday work law of April 1, 1905.

The factory law of 1877 consists of 21 articles, some of which have been subject to interpretation, amplification, and amendment by the Federal Council.

DEFINITION OF FACTORY AND GENERAL PROVISIONS.

The factory law does not include workshops, domestic or home work, mines, and railroads. Factories are defined as follows:

1. All establishments, no matter how many workers therein, in which there are to be found unusual dangers to the lives and health of the employees.
2. Establishments in which there are more than five workmen, in which mechanical motor power is used and which employ persons under 18 years of age.
3. Establishments employing more than 10 persons.

Among the establishments which are defined as factories and included under the first definition are the following: Flour mills with more than two millers not members of the employer's family; cement works; straw-weaving establishments; dye works; establishments engaged in the manufacture of floors, doors, sashes, machines, rubber bands, and shingles; tobacco and cigar factories; iron foundries; potteries; chemical bleaching factories; tanneries; beer breweries; machine embroideries using more than three looms; gas works; watch factories; book printing; sawmills; shirt factories; book bindings; bread bakeries; cheese factories; electric-power plants employing

more than two persons; watch-assembling shops; tailoring and dress-making shops; match factories, no matter how many persons are employed therein, etc.

The establishment of new factories and the remodeling of existing factories must have the previous permission of the cantonal government, which submits the plans to the Federal factory inspectors for their opinion.

The regular daily hours of labor for all workers in factories may not exceed 11, and on Saturdays and days preceding holidays 10, and must fall within the hours between 6 a. m. (5 a. m. in June, July, and August) and 8 p. m. The Federal Council is authorized to still further reduce the hours of labor in dangerous or unhealthy industries. Exceptional overtime work for periods not in excess of two weeks requires permission by the local or district authorities, and for longer periods of the cantonal government.

Night and Sunday work is as a rule prohibited. Permits for temporary night work of males over 18 years of age may be granted by the local or district authorities for periods not in excess of two weeks, and for longer periods by the cantonal government. The Federal Council is authorized to permit regular night and Sunday work for industries with continuous operation.

PROTECTION OF WOMEN AND CHILDREN.

According to article 15, women must not work on Sunday under any circumstances or at night. Women workers who have to attend to their houses must be given at least 1½ hours midday pause. Women are not allowed to work for a period of eight weeks in case of childbirth, and may not be admitted to work until six weeks after their confinement. In certain works no pregnant women are allowed to be employed. According to a special act of 1897, these works have been designated as follows: Phosphorus-match factories, lead works, potteries, enamel, type foundries and typesetting places, factories where mercury is worked with or where sulphurous acid fumes are generated, also laundries using benzine, or hard-rubber factories, or where carbonic disulphide or chloride of sulphur fumes are generated. They are also prohibited from lifting heavy weights.

Children under 14 years are not allowed to work in factories, and young persons under 18 years are not allowed to work in factories unless they bring a certificate that they have passed their fourteenth year. Children between 14 and 16 years must not spend more than 11 hours a day in factory work, including religious and school instruction. Children under 18 years are not allowed to work at night and on Sunday. Exceptions to this article may be given by the Federal Council, which also has power to designate special industrial processes and factories in which children must not work at all.

According to a decree of December 13, 1897, children under 16 may not work in the following trades: At and about steam boilers; all kinds of motors, hammers, electrical machinery; operating and using cranes and elevators; shifting pulleys and belts; work at circular saws and planing machines; calendering; shearing and kneading; centrifugal cutting and crushing machines; explosive materials; boiling of inflammable substances; in cement, lime, gypsum, glass, wood, peat, hemp, flax, rag, silk, and similar works where there is considerable dust in the air; carroting and bowing in hat factories; all work in chemical factories at which poisonous substances are used or gases and fumes are generated; lead glazing or lead enameling; zinc coating or tin coating processes, etc.

GENERAL INDUSTRIAL CONDITIONS.

Provision for the protection of the health and lives of the workers is found in articles 2 and 5 inclusive, which give the general rules for safety and sanitation; and also in the several employers' liability acts which directly and indirectly provide for the protection of the workers in factories and the prevention of industrial accidents and occupational diseases.

Article 2 provides that every factory, the workrooms, machines, and appliances shall be constructed and maintained so as to safeguard the health and lives of the workers as much as possible; that the workroom shall be well illuminated during work hours; that the air shall be free from dust, and the change of air be according to the number of persons, the means of illumination, and the generation of injurious gases; that all parts of machines and transmission shall be properly safeguarded against injury to workers; and that all safeguards known to the science of mechanics shall be used for the protection of health and safety against accidents.

Article 3 provides that anyone who wishes to establish a factory or to maintain such, or who wishes to make alterations in an existing factory must inform the cantonal government of his intention, and must also present plans and specifications as to the nature of operation; that a factory or establishment may be opened for work only after receiving permission from the cantonal government, which, in case of industries in which there are dangers to health and lives of the workers, as well as of the neighborhood in which the factory is situated, shall be conditional on compliance with specified provisions. Should objectionable conditions which are dangerous to the life and health of the workers or to the neighborhood arise in an establishment the authorities may fix a peremptory term for the abolition of the nuisance; or in case of necessity suspend the permit for operation until the objectionable conditions have been remedied. Appeals against the decision of the cantonal government are decided by the Federal Council.

Accidents must be immediately reported to the local authorities, which investigate and report to the cantonal government which reports them to the Federal inspectors.

The Federal Council is given power to designate occupational diseases for which employers shall be held liable.

In an order of the Federal Council of January 18, 1901, is given a list of 34 poisons and poisonous gases which if used in the operation of an establishment subject the owner to the liability act if they cause sickness of the workers.

The phosphorus match industry is regulated by special act. By the employers' liability law of 1877, which was amplified by later laws of 1881, 1887, and 1905, the owners are made responsible for accidents resulting in disability or death of the workers in factories in a large number of trades.

ADMINISTRATION.

The enforcement of the provisions of the Federal factory law is in the hands of the cantonal governments, which have the sole executive power to administer this act. According to article 19, violations of the provisions of the law lead to penalties of from 5 to 500 francs (\$0.97 to \$96.50), which are imposed by judicial authorities, with imprisonment up to three months, in cases where violations have been repeated. In some of the Cantons fines are made by administrative authorities without recourse to judicial proceedings. Workers are not subject to penalties for violations of the factory act.

The imposing of penalties depends upon the different judicial proceedings in the Cantons. In some of the Cantons lengthy judicial proceedings are begun for even small and unimportant violations, and in others fines are imposed by the administrative authorities. Judicial procedure as well as administrative penalizing differs with each Canton.

The law relating to the manufacture and sale of matches provides fines of from 100 to 1,000 francs (\$96.50 to \$965) for some violations and from 50 to 500 francs (\$9.65 to \$96.50) for others. Temporary or permanent withdrawal of the right to continue production may also be imposed for violations of the law.

ADMINISTRATIVE PROVISIONS.

According to the administrative provisions of the Federal factory law, the jurisdiction of the factory inspectors does not embrace the following:

1. Enforcement of the steam-boiler law of 1897. Steam boilers are inspected by the Association of Swiss Steam Boiler Owners. This association employs 15 inspectors who are responsible for this work.

2. Electrical works with more than two workers, although under the factory law and employers' liability law are inspected by special electrical inspectors under the jurisdiction of the Swiss electro-technical association.
3. Mines, of which there are about 50 with about 1,000 workers who are not under the factory law, although they are under the employers' liability act. Their supervision is under the jurisdiction of a special mining inspector.
4. Establishments which are not factories under the definition of the law; and all domestic and home work.

PROJECT FOR A REVISION OF THE FACTORY LAW.

Since 1904 there has been before the Federal Government a project for a thorough revision of the Federal factory law, said project having gone through various processes, commissions, and expert institutions; but has so far not been enacted. It is expected that it may become law within a year or two. The motive for the new revision of the factory law is well stated in the following motion before the Federal Council in 1904: "The Federal Council is invited to investigate and report upon the subject of the revision of the factory law in relation to work in factories with the purpose of shortening the hours of labor; better protection of workers; and, generally, a more intensive enforcement of the leading principles of the law and its administration."¹

ORGANIZATION.

According to article 18 of the factory law "the Federal Council has control over the enforcement of this law." The council appoints for this purpose permanent inspectors and determines their duties and powers. The Federal Council may, whenever necessary, appoint special inspectors for special industrial branches or factories. According to this article of the law, the Federal Department of Industry has supreme charge of the factory-inspection department. The department chief (at present Dr. Kaufmann), is therefore the chief of the factory-inspection department, although his relations with the inspectors are not very close as far as administration is concerned. He receives quarterly reports from each inspector and an official report once in two years. In the quarterly report, each inspector sends to the department chief a list of the visits made, exemptions granted, and inspections made as well as expenses incurred. Any complaints which are sent to the Department of Industry at the Federal office are turned over to the inspectors in their respective districts.

Yearly conferences are held with all the inspectors under the presidency of the chief of the Department of Industry. During these conferences matters connected with the inspection as well as gen-

¹ Botschaft des Bundesrates an die Bundesversammlung, betreffend die Revision des Fabrikgesetzes—Vom 6 Mai, 1910.

eral subjects are discussed. The report of the last conference held states that there were 18 subjects considered by this conference. Among the subjects considered were the following: Lack of uniformity in the accident statistics of the different cantons and the different inspection districts; a project for a new statistical table; the advisability of fining workers for violations of the accident law; dangers of work with ferrosilicon, etc.

The inspectorial force consists of three permanent inspectors, whose term of service is similar to the term of service of all the Federal officials—three years; but the appointment is renewed every three years. Each of the three inspectors is practically independent of the central Government in his work in the district. The whole country is divided into three districts, as follows:

The first district embraces the cantons of Zurich, Uri, Schwyz, Obwalden, Nidwalden, Glarus, Zug, St. Gall, and Grisons. The office of the inspector is in Mollis, in the canton of Glarus.

The second district embraces the cantons of Bern, Fribourg, Ticino, Vaud, Valais, Neuchatel, and Geneva. The office of the inspector is in Lausanne.

The third district embraces the cantons of Bern (old), Lucerne, Solothurn, Basel City, Basel Land, Schaffhausen, Appenzell, Aargau, and Thurgau. The office of the inspector is in Schaffhausen.

The following are the official instructions to the factory inspectors to guide them in their work of inspection:¹

1. The Federal factory inspectors are under the jurisdiction of the Federal Department of Industry. The duties of the factory inspectors are to control the cantonal enforcement of the law of March 23, 1877.
2. The factory inspector for this purpose must keep a register of all the factories in his district which come under the law and inspect each one at least once in two years and oftener when necessary; he must also make special inspections when requested by the department without delay.
3. In cases where his own expert knowledge is not sufficient, the inspector may call in his colleagues; or with the permission of the department, special experts.
4. The inspector shall also visit such industrial establishments in his district which, although they are not on the list of factories subject to the law, may present reasons for a probable subsequent inclusion therein.
5. Inspectors shall keep a record of their inspections, stating the date of the visit, the name of the firm, and the kind of establishment, as well as the locality and canton. Copy of such visiting list must be sent every three months to the department.
6. Inspectors are not obliged to give previous information to the employers of their intended visits.

¹Translated in the United States Bureau of Labor Statistics from Landmann, Dr. Julius, *Die arbeiterschutzgesetzgebung der Schweiz*, Basel, 1904, pp. 74 ff.

7. Inspectors are authorized to question any person employed in the establishment, including the head of the establishment or his representative, if necessary without the presence of witnesses, but in doing so shall always try to avoid any interruption of operation. Except in the case of official reports, inspectors shall not divulge information as to business conditions or conditions of operation which have come to their knowledge; they shall especially maintain strict secrecy as to technical equipment, processes, and characteristic features which have been designated to them by the manufacturer as secret.
8. Inspectors shall submit to the department reports and proposals as to desirable administrative and legislative measures; inclusion of establishments in the list of establishments subject to the factory law or removal of them from this list, and verification of the list. They shall also render their opinions to the department on all questions assigned to them for this purpose, and generally comply with all special orders of the department.
9. In exercising a well-meaning control the inspectors shall not only insure to the workers the benefits of the law, but also tactfully aid the employers in complying with its requirements, mediate between both parties in a fair manner, aided by their knowledge and experience, and gain the confidence of employers as well as of employees. Inspectors have no executive power. Should they encounter violations of the law or objectionable conditions they must immediately request from the employer their discontinuance, and in case of refusal notify those authorities of the cantonal government which are charged with the enforcement of the law. If in the opinion of an inspector these authorities fail to properly enforce the law, he shall report the matter to the federal department.
10. Inspectors must preserve all official correspondence. All papers relating to accident reports, permits of overtime work, etc., received by the inspectors shall be used by them to present statistics in their annual reports. Inspectors must keep in their offices an inventory of all property belonging to the Federal Government and send a copy of it to the department at the end of each year.
11. Inspectors must inform the department of each inspectorial journey of longer than six days' duration before beginning such journey, and give their address for mail.
12. The provisions of the decree of the federal council of February 21, 1879, are applicable to vacations for inspectors.
13. Inspectors may in no manner participate in an industrial undertaking, nor may they appear before the courts as technical experts.
14. Inspectors must quarterly render an accounting to the department on the form prescribed for this purpose.
15. On February 1, at the latest, inspectors must make an official report to the department, according to an outline prescribed by the latter. The department shall determine whether this report is to be submitted annually or biannually.

Each of the three district inspectors has two assistants, who are designated as assistants of the first class and assistants of the second class, each inspector having one assistant of the first class and one of the second class.

No women have as yet been appointed as inspectors. The inspectors, as well as the assistants, are appointed by the Federal Council. They receive a card of identification to which their photograph is attached. The promotion of inspectors is regular, and usually at the retirement of the inspector the assistant of the first class takes his place and the assistant of the second class takes the place of the assistant of the first class.

There are altogether nine inspection officials in the Federal Swiss factory inspection department.

Since Dr. Schuler's retirement and death there is no physician in the office of inspector, nor is any of the inspectors regarded as chief, their positions being equal. At present all special inspection relating to industrial hygiene, to dangerous diseases, etc., are made at the request of the inspectors by Dr. E. Roth, professor of the Technical College in Zürich, head of the Industrial Museum. Prof. Roth makes air tests, special inspections of dangerous trades, and during the last year made over 2,000 light and illumination tests.

SALARIES.

The following are the salaries of the inspectors and their adjuncts:

Inspectors.....	6,200 to 8,200 francs (\$1,196.60 to \$1,582.60)
Adjunct, first class	5,200 to 6,200 francs (\$1,003.60 to \$1,196.60)
Adjunct, second class.....	3,700 to 4,700 francs (\$714.10 to \$907.10)
Office clerks.....	2,000 to 3,500 francs (\$386 to \$675.50)

Besides a salary, inspectors are allowed free transportation on the railroads and boats of the country. Such transportation is paid for by the department. In the case of Dr. Wegman, the department has paid, for 1913, 530 francs (\$102.29) for a yearly ticket, which ticket entitles him to travel over all the railroad and steamship lines in the State. Besides salary and railroad fare, the inspectors are entitled to special sums while traveling in official capacity. Inspectors receive 10 francs (\$1.93) per day and 7 francs (\$1.35) per night; first assistants receive the same sums, but the second assistants receive 9 francs (\$1.74) per day and 6 francs (\$1.16) per night. Inspectors and assistants are insured against invalidity, and death by accident at the expense of the State.

SELECTION OF INSPECTORS.

Inspectors are appointed by the Federal Council without any civil-service examinations. Reference was made to the appointment of the first inspectors. Since that time all the other appointments were

made by promotion, and new appointments of assistants of the second class were made from time to time by the Federal Council. There are no politics in the selection of the inspectors. As already noted, a member of the International was one of the first inspectors. A Social Democrat is at present an inspector in Basel.

A knowledge of languages is of great importance especially in the French and Italian Cantons. In the appointment of assistants the chief of each respective district is consulted and asked to investigate the records of each applicant. Dismissal of an inspector is possible, but has never occurred.

The character of the inspectors may be judged by the first inspectors. Usually technically trained men or men who are interested in industry and in industrial life are appointed. Dr. Schuler was a physician and expert on hygiene; another inspector is a practical engineer; another is a chemist; another is an electrical engineer. Dr. Wegman says that at present there is no jurist and no physician among the inspectors. Dr. Wegman, a doctor of philosophy, was for 16 years assistant to Dr. Schuler, and has succeeded him.

CANTONAL FACTORY INSPECTION.

Besides the Federal factory inspectors there are several Cantons which have their own factory inspectors. The Cantons which have their own inspectors are the following: Basel, St. Gall, Neuchatel, Solothurn, and Valais. Cantons Zurich and Appenzell have, instead of inspectors, local commissions. In the other Cantons the enforcement of the law is by the police or local authorities. Where there is a special inspectorial force appointed by the Cantons this force has usually other duties besides assisting the Federal inspectors in their work. They usually inspect smaller workshops and have charge of the industrial and trade laws, associations, apprentice laws, etc.

The inspectorial department of Basel, which the author visited, consists of an industrial inspector, two assistants of the second class, and a female assistant of the second class. Their office is in the quaint, ancient Rathaus of Basel. The industrial inspector of Basel is a chemist and was formerly chief of the observatory. He receives a salary of 5,000 francs (\$965) per year. He is also one of the judges in the industrial court as well as secretary of the workers' commission for the settlement of strikes, etc. He has three assistants, one of them a woman, who has charge of the establishments in which children and women are employed. One assistant takes charge only of accident cases and makes investigations of these; the third assistant has supervision over the apprenticeship system. There is no telephone in the office, as otherwise the inspectors say "they would be bothered too much."

Factories are left to the supervision of the Federal inspectors. An establishment which has machinery and motor power and a number of employees in certain departments may be partly subject to Federal inspection. In other parts where there is no machinery or motor power it is not a factory and is subject to cantonal inspection.

The duties of the industrial inspectors of Basel are stated as follows:

1. The enforcement of the law for the protection of women workers, the enforcement of the Federal factory law, and the Federal employers' liability law as far as these are not within the jurisdiction of the Federal authorities.
2. The support of the Federal factory inspectors.
3. The enforcement of the law for the protection of employees in commercial establishments.
4. The enforcement of the Sunday law.
5. The supervision of the apprenticeship system according to the apprenticeship law.
6. The secretaryship of the commission for commerce, industry and trade, and apprenticeship.

WORK OF FEDERAL INSPECTORS.

STATISTICAL DATA.

The last biennial report of the Federal factory inspectors was issued in 1912 and embraces the inspectorial period of 1910 and 1911. During June, 1911, a general industrial census was taken throughout Switzerland, and is published in a separate volume under the title of "Schweizerische Fabrikstatistik nach den Erhebungen des Eidgenössischen Fabrikinspektorates vom 5 Juni, 1911—herausgegeben vom Schweizerischen Industriedepartementen."

The total area of Switzerland occupies 41,324 square kilometers (15,955 square miles) and is divided into 25 cantons. The total population on December 1, 1910, was 3,750,000. There were on June 5, 1911, in the whole of Switzerland 7,785 establishments employing 328,841 workers, an increase of 28 per cent in the number of establishments since 1901, and an increase of 294.6 per cent in the number of establishments since 1882. There is an increase in the working population of 35 per cent since 1901 and 243.8 per cent since 1882. Of the 7,785 establishments there were 1,190 without motors and 6,595 with motors driven either by water, steam, or electricity. The total horsepower used in the 6,595 factories using motors was 964,440.

The table following shows the number of establishments according to the number of persons employed therein.

NUMBER AND PER CENT OF ESTABLISHMENTS EMPLOYING EACH CLASSIFIED NUMBER OF PERSONS, AND TOTAL NUMBER OF WORKERS EMPLOYED, SWITZERLAND, JUNE, 1911.

Classified number of persons employed in each establishment.	Establishments.		Number of workers.
	Number.	Per cent in each class.	
Up to 10 workers.....	2,699	34.7	17,379
From 11 to 20 workers.....	1,869	24.0	27,788
From 21 to 50 workers.....	1,734	22.3	55,833
From 51 to 100 workers.....	830	10.6	59,111
From 101 to 200 workers.....	403	5.2	55,847
From 201 to 500 workers.....	192	2.4	57,129
Over 500 workers.....	58	.8	55,754
Total.....	7,785	100.0	328,841

Nearly one-third of the workers, or 100,175, working in 1,584 establishments, belong to the textile industry. The next largest group of workers, namely, 46,435, belong to the industry of machines, apparatus, and instruments. The next largest group of workers, 34,983, are working in the jewelry and watch industry. In only 7.5 per cent of the industries were no women found at work.

The following shows the number of workers according to age and sex:

Total workers.....	328,841
Total male workers.....	211,077
Total female workers.....	117,764
Male workers between 14 and 16 years.....	9,406
Male workers between 16 and 18 years.....	14,063
Male workers between 18 and 50 years.....	164,198
Male workers over 50 years.....	23,410
Female workers between 14 and 16 years.....	11,632
Female workers between 16 and 18 years.....	16,054
Female workers between 18 and 50 years.....	81,351
Female workers over 50 years.....	8,727

WORK OF INSPECTORS IN EACH DISTRICT.

According to the last report, the inspector of the first district with his two assistants have made in 1910 and 1911, 2,767 and 2,257 inspections, respectively. The reason for the smaller number of inspections in 1911 was due to the trip made by the inspectors to visit the Dresden Hygienic Exposition. This practically covered all the factories in the districts. The inspectors also spent 354 days of traveling in 1910 and 301 days in 1911. No Sunday inspections were made and few night inspections.

The total number of factories in this district was 2,594, employing 117,618 workers. The inspectors state that their relations with employers and employees were very close and constant.

During the two years there were 372 plans for new establishments presented to the inspectors for revision.

The latest accidents in factories reported by inspectors are for 1909 and 1910. The total number of accidents in 1910 for the first district was 7,922, with a loss of work of 187,870 days. Of these accidents 24 were fatal. The ratio of accidents per 1,000 workers was 67.9. There was paid to the workers on account of accidents the sum of 1,582,097.25 francs (\$305,344.77).

One hundred and six cases of occupational diseases were reported during the two years. These were reported not only from factories but from all establishments which were under the employers' liability act. Eighty-three per cent of the cases were due to lead poisoning. The rest were due to the action of gases and fumes. There were two cases of anthrax poisoning in 1910. Two cases where death was caused by inhalation of nitrous gases were reported.

Dr. Wegman in his report states that he does not think that all the cases of accidents have been reported. In one firm which employed several hundred workers he found that not one case of accident was reported. In other cases only fatal or very serious accidents were reported.

In the course of the two years the inspectors of the first district received 464 various projects connected with industries for their advice and report.

The inspectors passed upon permits for applications for overtime, as follows: In 1910, for 2,557 establishments; in 1911, for 2,594 establishments; number of workers, 117,024.

Overtime work up to two weeks was permitted in 1910 for 4,768 workers and in 1911 for 4,509 workers. Overtime work for more than two weeks excluding Saturdays was permitted in 1910 for 1,288 workers and in 1911 for 1,700 workers.

Special permits were given for night work in 1910 for 69 workers and in 1911 for 107 workers; for Sunday work, in 1910 for 17 workers and in 1911 for 27 workers.

The total number of permits given during 1910 was 633 and during 1911, 646.

The report mentions but few cases of illegal child labor. It states that the enforcement by the cantonal government of the factory law was very good. There was a total of 206 violations of the factory law in which fines were imposed, with a total sum of 5,435 francs (\$1,048.96).

The inspector of the second district reports that there were 2,410 establishments in his district with 78,717 workers in 1911.

For the years 1910 and 1911 the three inspectors made 4,614 inspections—2,872 inspections in 1910 and 1,742 inspections in 1911.

Five hundred and twenty-five establishments not under the factory act were also visited.

The inspectors were unable to visit 300 establishments in the Canton of Geneva, and inspections were made for them by the inspector of the Canton.

A number of establishments in the Canton of Ticino were inspected by the health department of the Canton.

On inspectorial journeys 368 days were spent in 1910 and 223 in 1911. Three conferences were held in 1910 and 2 in 1911.

The smaller number of inspections for 1911 is due to the number of conferences held and to the visit to the Dresden Exposition.

The inspectors report that in most cases their simple orders to the employers were complied with.

During the two years, 328 permits for new establishments and for altering old establishments were received, examined, and reported upon.

The number of accidents in factories during 1910 and 1911 was 8,136, compared with 7,306 of the preceding two years.

The ratio of accidents per 1,000 workers was 57.39. The greatest number of accidents was in the chemical industry; next came the metal industry. One hundred and twenty-two fatal cases were reported for all classes of establishments. Accidents due to machinery, 26.5 per cent.

As in the first district, a large per cent of industrial poisoning was due to lead. One fatal accident was due to inhalation of nitric acid fumes, and two fatal accidents from carbon-oxide poisoning.

The total number of permits for overtime and for night and Sunday work was 687 in 1910 and 700 in 1911. Sixty-eight permits were given for nightwork, and 267 permits were given for Sunday work.

The total number of cases of violations upon which fines were imposed in the district was 181, with a total sum of fines imposed amounting to 3,313.80 francs (\$639.56).

The inspector of the third district reports 2,811 establishments in his district with 133,000 workers.

There were made by the three inspectors 2,947 inspections in 1910 and 2,002 inspections in 1911. Only one night inspection was made in 1911 and none in 1910. Practically every factory in the district was visited at least once a year.

The reasons given in the other districts for the smaller number of inspections in 1911 also apply to the third district, the inspectors having attended the Dresden Exposition and various conferences.

There were 576 applications for reports on new establishments presented to the inspectors within the two years.

The inspectors report accidents in 1909 and 1910 numbering 15,032 in factories and 9,378 in establishments not classed as factories. The ratio of accidents per thousand workers was 60.3 in 1910. There were paid on account of accidents according to the employers' liability law 1,556,105.67 francs (\$300,328.39).

Ninety-nine cases of industrial poisoning were reported, 21 of which were due to lead.

In 1910 the inspectors of this district gave 704 permits for exceptions for nightwork, etc.; 145 permits were given for nightwork, and 89 permits were given for Sunday work.

Inspectors complained of a large number of child workers employed in the home-working industries, over which the inspectors have no control.

In 267 cases fines were imposed for violations, the total sum of fines being 6,520.20 francs (\$1,258.40).

METHODS OF INSPECTION.

The offices of the district inspectors are usually in buildings owned by the cantonal governments, but a rental is paid by the Federal Government for such offices. The office of the first district inspector, Dr. Wegman, is in a small village at the foot of the mountains at Mollis near Nafels in Canton Glarus, in the post-office building. No telephones are installed in the office, as the inspector claims he would rather have written complaints than be "bothered by telephone messages." Anonymous complaints are attended to. Some complaints are received at the office of the district inspector; a great many are sent to the Federal Government at Bern.

The relations between the inspector and his assistants seem to be very intimate and friendly. The assistant inspectors are not given districts, but are assigned by the inspector according to need and their special knowledge. At the office of the first district there are no clerks. Most of the correspondence is done without a typewriter.

For each industrial establishment is kept an akt consisting of the reports which are made by the inspector for each inspection. The akt is therefore practically a history of the inspections made by the inspectors. No copies of these akten or reports are kept, and the inspector usually takes these akten with him on his inspection in the district. What would happen in case some of these akten are lost the inspectors did not say. The report, which is written by each inspector after the inspection of a certain factory, is dated, but is not signed, because, as an inspector explained, the handwriting of each inspector is well known without his signature.

Each factory is required to keep a "Fabrikordnung" on a form which is given to them by the inspectors. The "Fabrikordnung" shows the following data:

I. Hours of work:

Industry ——. Date ——.

Address ——. Monday to Friday ——.

Fabrikordnung approved ——. Hours ——. Pauses ——.

Hours of labor ——. Saturday ——. Pauses ——.

II. Federal exemptions for night, Sunday, and shift work:

Number —.
 Industry —.
 Date of permit —.
 Hours allowed —.
 Remarks —.

III. Number of workers:

Date —.
 Male —; under 16 —; under 18 —; over 18 —; total —.
 Female —; under 16 —; under 18 —; over 18 —; total —.
 Female keeping house —; married —; total —.

IV. Machines and motors:

Date —. Number of horsepower —.
 Kind —.

V and VI. Insurance:

Date —.
 Accident insurance —.
 Premium —.
 Participation of the workers —.
 Sickness insurance —.

VII. Permit for extra work:

Year —.
 Sundays —.
 Nights —.
 Remarks —.

Besides this the Fabrikordnung gives the following:

I. The daily hours of work consist of — hours.

On eves of Sundays and legal holidays — hours, with closing hour at 5 p. m.

II. Payment of wages every — days, on — day of week, of which — days are held for payment for the following week. The employer is entitled to this pay in case the worker illegally leaves his place.

III. Two weeks' notice must be given by employers and workers. The notice must be given on pay day or on Saturday. Shorter or longer notices may be arranged by special contract.

The following form is used for registering of accidents:

List of accidents occurring in the establishment of the firm —.

Number —. Number of establishment —.

Name of injured —; his year of birth —.

Special employment —; injured through —; nature of accident —; date of accident —; recovery —.

When was notice of accident sent to the authorities?

Compensation according to the law of June 25, 1881:

1. Number of days or hours —.
2. Wages per day or per hour —.
3. Total —.
4. Cost of treatment and cure —.
5. Permanent disability —.
6. Accident insurance —.
7. Industrial insurance —.
8. Sickness insurance —.

Owners are also required to keep a "Wöchnerinnenliste," i. e., a list of women workers who have been confined. This list gives the date of confinement, the number of days and weeks before confinement when the worker left the factory, and the date of return to the factory after confinement.

Child workers under 18 years are required to present a certificate of age before being employed. The certificate is as follows:

<i>Free.</i>	
AGE CERTIFICATE FOR FACTORY WORKERS.	
Name.....	
from.....	
born....., 19....	
[Town].....	Local official
[Date of issue].....	.....

No special tests for light, air, etc., are made by the inspectors; all such tests being made, if necessary, by Prof. Roth, of the Technical College of Zürich. The inspectors begin their work with an examination of the registers and records kept by the owner, and then proceed to the inspection of the personnel of the workers, especially in relation to child and women workers, and then to the sanitary condition and to the machinery in the factory.

It is seldom that inspectors tell the employer just what is to be done in case they notice violations, unless these violations are of minor character, such as deficient forms, registers, etc. In case some serious violations are found, the inspector usually sends a form letter printed by the Government to the employer upon his return to the office. This form letter reads as follows:

FEDERAL FACTORY INSPECTION OF THE FIRST DISTRICT.

Mollis.

Date ———.

Mr. ———.

The inspection of your establishment on ———, has led me to make the following demands of you, which, according to official custom, I repeat herewith in writing

I request you to advise me of compliance with these demands, and remain,
Yours, very truly,

(Name),
Factory Inspector, First District.

Usually 10 days' time is given by inspectors for reply. In case no reply is received a second letter is sent as follows:

FEDERAL FACTORY INSPECTION OF THE FIRST DISTRICT.

Mollis.

Date _____.

Mr. _____.

The last inspection in your establishment has compelled me to request you to remedy certain defects and to send me written notice of such compliance with my request. As your answer has not been received, I beg you to send me such reply within at least 14 days from date.

Yours, very truly,

(Name)

Factory Inspector, First District.

If no reply is received to the second notice, the inspector notifies the local authorities of the Canton—either the police or the State department which has charge of the enforcement of the law. The owner then receives a letter from the cantonal Government, notifying him of these violations and requiring him to remedy the illegal conditions under threat of penalty and fine. A copy of this letter is sent to the Federal inspector. The inspection is then made by the cantonal factory inspector or by the local police. If the illegal conditions have not been remedied proceedings are brought by the cantonal authorities before the court, or the Government authorities themselves proceed with imposing fines upon the owner. If the fine is too small, or no fine at all is imposed, the Federal inspector may appeal to the Federal industrial department against the cantonal authorities. An appeal may also be made by the employer against a fine which he considers too heavy for the violations. In certain cases either the Federal factory inspector or the employer may demand a special investigation of the matter so as to determine technically the disputed points.

Dr. Wegman told the writer of a case where an order for an additional staircase in a factory was strenuously fought by the owner and it took three months before he was at last compelled to comply with the order. This, Dr. Wegman thinks, is the longest time that it has taken for an order to be complied with from the time of its issue.

The inspectors do not do any special educational work among the employees or the employers in the factories, although a number of circulars and booklets are issued by them for such purposes. A special circular on prevention of tuberculosis in workshops issued by the Federal factory department under date of August 31, 1900, is usually posted in every factory. It gives in a clear and succinct way the principles of prevention of the spread of tuberculosis—by cleanliness, by not spitting on the floors, etc.

There are also other pamphlets issued by the department, such as sanitary regulations for printing establishments, hygienic arrangements in cigar and tobacco factories, prevention of injury in the wood industry, how to prevent accidents in the manufacture and storage of celluloid, information for workers in establishments using lead or lead compounds, etc.

STANDARDS.

There are no special standards by which the inspectors are guided in their inspection of factories except in the general provisions of the factory law. There were, however, special standards established on December 13, 1897, for the guidance of inspectors in giving permits for new factories and for alterations of old factories.

Some of the most important standards are the following:¹

Basement rooms.—Basement rooms may be used as workrooms only in case they are sufficiently lighted, protected from dampness, and not exposed to danger from inundation.

Height and air space of workrooms.—Workrooms must be at least 3 meters (9 feet 10 inches) high. For each worker there must be a minimum air space of 10 cubic meters (353 cubic feet). Rooms with a floor space of from 100 to 200 square meters (1,076 to 2,153 square feet) must be at least 3.5 meters (11 feet 6 inches) high, and those with a floor space in excess of 200 square meters (2,153 square feet) at least 4 meters (13 feet 1 inch) high.

Windows.—Windows must be at least 1.8 meters (5 feet 11 inches) high and reach within 30 centimeters (11.8 inches) of the ceiling. They must be so constructed that in emergencies persons may be able to escape through them.

Light.—Sufficient provision must be made for the lighting by natural or artificial lights of all workrooms, stairs, halls, toilets, etc. Emergency lamps shall be installed in sufficient number in rooms lighted by gas or electricity.

Ventilation.—Ventilation shall be effected by means of easily regulated ventilators placed in all windows, unless other sufficient ventilating apparatus is provided.

Heating.—Heating apparatus and pipes in the workrooms shall be placed as low as possible and in such a manner that the workmen are not inconvenienced by radiation of the heat. Heating apparatus must be so constructed that it can be easily cleaned of dust.

Stairs.—Stairs which are not inclosed by solid walls must be provided with a safety railing. In establishments in which inflammable or easily combustible materials are worked up the stairs must be constructed of iron or stone and be inclosed in fireproof walls.

Exits.—All buildings of a length of 30 meters (98 feet 5 inches) or more must be provided with two separate stairways leading into the open. Likewise, buildings with three or more stories must be provided with two stairways, or one main stairway and a fire escape. The main stairway must have a width of at least 1.2 meters (3 feet 11 inches).

Doors.—Doors must have a minimum width of 1.2 meters (3 feet 11 inches) and open outward. In establishments working up explosives or inflammable materials the doors must be covered on both sides with metal. Large frame buildings must be provided with a suitable number of emergency exits.

Shafts and elevators.—Elevator shafts and other large openings from one floor to another must be so constructed that they shall not contribute to spreading of fire or

¹ Translated in the United States Bureau of Labor Statistics from Landmann, Dr. Julius, *Die Arbeiterschutzgesetzgebung der Schweiz*, Basel, 1904, pp. 39 ff.

smoke. Large shafts must be constructed of fireproof material and, whenever possible, be walled in on all sides. Passenger elevators must be provided with safety brakes, and at their landings they must be securely locked.

Galleries, bridges, etc.—Galleries, ascents, bridges, running boards, platforms, etc., must be provided with a railing and a skirting preventing the falling of objects.

Toilets.—Separate toilets for each sex must be provided in sufficient number (at least one for each 25 persons), and those for men are to be equipped with urinals. They must be separated from the workrooms by an easily ventilated hall and have self-closing doors. Waste pipes of toilets may not be of wood and are to be provided with ventilator pipes reaching beyond the roof. Waste pipes terminating in a general sewer must be water sealed. Cesspools must be isolated from all walls of buildings, be waterproof, and be provided with an air-tight discharging sluice. Each cesspool must be provided with a ventilator pipe of a minimum diameter of 20 centimeters (7.9 inches) extending above the roof.

Exhaust of dust and gases.—In workrooms in which injurious dust or poisonous or noxious gases are generated provision must be made for their direct removal, as well as for locker wardrobes and washing appliances, and if practicable for separated dressing, wash, and bath rooms.

Pollution of the air by explosive gases.—Gas, benzine, petroleum, and similar motors must be separated from the workrooms as air-tight as possible. Gas meters, gas washers, etc., may not be installed in rooms in which there are lights or other burning or incandescent substances.

Drying chambers.—Drying chambers directly heated by furnaces are to be installed in detached buildings, or if they are attached to the main building they must be separated from the latter by a fire wall.

Storerooms.—Storerooms for large quantities of inflammable material may be installed beneath workrooms only in case they are separated from them by means of fire walls and fireproof ceilings.

Steam boilers.—The decree of October 16, 1897, relating to the installation and operation of steam boilers is also applicable to steam boilers in factories.

Moving parts of machinery.—All rotating or moving parts of machines must be so covered and guarded that contact with them is prevented. Electric power engines and power mains must be safely insulated or screened in.

Transmission machinery.—Transmission machinery in workrooms which is not entirely inclosed must be installed at least 2 meters (6.6 feet) above the floor. Transmission ropes or belting running over passages, halls, courtyards, etc., are to be provided with protective netting. Rotating transmission parts must not have protruding keys or bolts. Transmissions passing through the floor must be so installed that they can easily be attended from above, or that this may be done without difficulty in the conduit or in the basement.

Disconnection of transmission parts.—Arrangements are to be made so that the disconnecting of transmission parts may in all workrooms be easily effected. In exceptional cases permission may be given to connect the workrooms with the engine room by a signal apparatus. Each individual machine must be so arranged that it can be independently disconnected.

Passages between machines.—The machines must be so installed that workmen do not hinder or endanger one another. Passages between individual machines must be at least 0.8 meter (2.6 feet) wide, and main aisles at least 1 meter (3.3 feet).

Lunch rooms.—Lunch rooms shall be installed in all factories in which it can not be proved that they are superfluous.

Drinking water.—Provision is to be made for good drinking water wherever possible.

Fire-extinguishing apparatus.—Hydrants shall be installed wherever possible; otherwise water tanks shall be provided.

**APPENDIX.—AGREEMENTS BETWEEN EMPLOYERS, EMPLOYEES, AND
FACTORY INSPECTORS ON RULES FOR THE PREVENTION OF ACCI-
DENTS IN GREAT BRITAIN.**

One of the recommendations of the departmental committee on accidents in places under the factory and workshop acts in Great Britain was that conferences should be held by the factory inspectors, with representatives of employers and workpeople, for the purpose of discussing dangers and the best means of preventing accidents. This recommendation was carried out in 1912 in regard to cotton spinning, cotton weaving, worsted and woolen spinning, and, to the extent of a preliminary conference, in iron founding industries. On each occasion there was a substantial degree of agreement on many important details. The official report of the terms of agreement of each conference is printed in the Annual Report of the Chief Inspector of Factories and Workshops for the year 1912, and the text of the first three of the agreements is given herewith.

COTTON-SPINNING CONFERENCE.

NOTES OF AGREEMENTS.¹

FENCING AND SAFEGUARDS.

I. General provisions.

- (a) On new machinery all projecting set screws on continuously revolving parts shall either be countersunk or be otherwise efficiently protected; where projecting set screws are placed inside box pulleys they shall be deemed to be efficiently protected.

Projecting set screws on existing machinery are to be dealt with by inspectors according as the occurrence of accidents may indicate the necessity of countersinking or protection.

- (b) On new card-room machinery the following wheels shall be plated:
(1) All driven pulleys.
(2) Pulleys or undershafts of draw frames.
- (c) Ladders, other than stepladders, shall be fitted with hooks or other nonskid device—provided that in mule rooms or in rooms where persons work with bare feet, ladders shall not be fitted at the bottom with spikes.
- (d) Heavy overhead main driving belts or ropes shall be guarded underneath in all cases where there is liability of persons having to pass under them.

NOTE.—This does not refer to the strap that drives the mules, nor to the rope race in the engine house.

- (e) It shall be obligatory on any woman or girl working about machinery to have her hair put up or otherwise confined in a net.
- (f) All firms are to be urged to keep a supply of sterilized dressings, which shall be kept available for first aid for any operative who receives a cut or wound.

¹ From Great Britain Home Department, Annual Report of the Chief Inspector of Factories and Workshops for the year 1912. London, 1913, pp. 94, 95.

II. Blowing-room machinery.

- (a) Beater covers and the door immediately over the dirt grid shall be fitted with an automatic locking arrangement which renders it impossible to open the covers while the beater is still running, or to restart the machinery until the doors have been closed.
- (b) The nip between the cage wheels and calendar wheels shall be efficiently protected on all machines. On new machines "spectacle" guards shall be provided, extending round the outer edge of both wheels.
- (c) Fender guards shall be provided for the fan-strap side of scutchers, to guard the fan strap and slow-motion strap. Provided that on existing machines where the slow-motion pulley is driven directly by a strap from the overhead shaft, it shall be optional either to plate the wheel or to protect it by a fender guard. If the fan strap is on the opposite side to the slow-motion strap, each strap shall be protected separately.
- (d) Projecting ends of beater shafts shall be fitted with loose sleeves, or be otherwise protected.

III. Carding engines.

- (a) All feed-roller wheels, doffer and barrow wheels, side-shaft wheels, calendar wheels, and coiler wheels shall be efficiently fenced.
- (b) All cylinder doors shall be fitted with an automatic locking motion which will prevent the door from being opened until the cylinder has ceased to revolve, and which shall render it impossible to restart the machine until the door has again been closed.
- (c) Licker-in covers shall be screwed down so that they can not readily be lifted while the machine is in motion.
- (d) In new machinery covers shall be extended as far as is reasonably practicable over the doffer.
- (e) In new mills there shall be a space of at least 12 inches between the pulleys or the outermost parts between the cards, and at every third card a space of 24 inches.

IV. Drawing frames.

- (a) The roller gearing shall be effectively covered, and on new frames the covers shall be automatically locked in such a way that they can not be lifted while the machinery is in motion.
(It is understood that this rule shall not prohibit the overlooker from putting the lock temporarily out of action when changing the wheels, it being recognized that he must see them running in order to satisfy himself that they are properly set.)
- (b) The pulley at the end of the frames shall be protected.
- (c) The undershaft shall be covered.

V. Speed frames.

- (a) Headstocks shall be fitted with metal plates to protect all jack-box wheels, and these on all new frames shall be fitted with automatic locks which shall prevent the doors being opened while the machinery is in motion, and shall render it impossible to restart the machine until the door has been closed.
- (b) Draft change wheels, twist wheels and carrier wheels, bobbin driving wheels, and lifter wheels shall all be effectively protected.
- (c) Bobbin skew gear wheels shall be covered over the top, and these covers shall be extended both in front and behind round the edge of the wheels, except in those cases where the spindles are not cleaned whilst the machinery is in motion.
- (d) Spindle skew gear wheels shall be effectively covered. On new frames the covers shall be of metal (other than cast iron), and on old frames metal covers shall generally be substituted for wooden ones as the necessity arises for their renewal.

V. Speed frames—Concluded.

- (e) Lifter rack wheels should be securely fenced, the guard to be such that it will effectively protect the nip both as the rail rises and as it falls.
- (f) All new balance weights shall be cast with the eyelet forming part of the weights themselves.

VI. Self-acting mules.

- (a) The guards for middle back shaft scrolls shall be fitted with flanges to protect the intake of the bands and the side of the scroll. The guards for middle draw band and carrier pulleys shall be either fixed to the bottom creel board, or be so fastened otherwise that they can not readily be knocked aside. The side pieces of the guard shall be extended inwards far enough to completely guard the nip between the band and the scroll.

(This rule was agreed to in principle, but the exact forms of the guards are to be decided upon later.)

- (b) On new machines the guards for faller stops shall consist of a cover over the stop. The combined guard and faller stop shall not be deemed to satisfy the requirements of this rule.
- (c) On new machines the guards for end draw band pulleys shall be extended at least half an inch beyond the end of the pulley.
- (d) Where persons have to stand on creels to attach driving belts (not counter-shaft belts), the two creels shall be joined together by timber to form a platform on which to stand, or some other equally safe method shall be adopted to the satisfaction of the inspector.
- (e) In new mills the space behind the mules shall not be less than 3 feet between the rovings.
- (f) Metal fasteners shall not be used for overhead driving belts unless the belt itself be securely fenced—provided that this rule shall not apply to metal fasteners consisting of a continuous wire stitching held together by a peg other than a metal peg.

VII. Ring and throstle frames.

- (a) All cogwheels shall be securely fenced.
- (b) The outer ends of the frames shall be filled in with metal plates.
- (c) No banding of spindles shall be allowed while the frame is in motion where there is a double tin roller.

CLEANING MACHINERY.

I. Young persons shall not be allowed to clean the following parts of machinery while they are in motion:

- (a) Blowing room machinery—
No part which requires the removal of guards.
- (b) Carding engines—
 - (1) Sides and backs of cards, except with a handbrush;
 - (2) Doffer covers, comb-box, top of comb, and top of coiler, except with a soft waste or strips;
 - (3) Other parts not to be cleaned at all while in motion.
- (c) Speed frames—
No part of machinery that it has been agreed requires guarding shall be cleaned whilst in motion, nor are the spindles between the bobbin and spindle skew gears to be cleaned whilst in motion, unless the guard for the bobbin skew gear is extended both in front and behind round the edge of the wheels.

I. Young persons shall not be allowed to clean the following parts of machinery while they are in motion—Concluded.

(d) Self-acting mules—

- (1) Back shaft scrolls, draw band, and carrier pulleys;
- (2) Back carriage wheels and back of carriage;
- (3) Quadrant pinions;
- (4) Back of headstock, including rim pulley and taking-in scrolls;
- (5) The whole of the front of the headstock.

It was further agreed that these restrictions should be deemed to apply only to persons under 18 years of age.

TEMPERATURE.

The following temperatures were agreed to as being "reasonable":

	Maximum.	Minimum.
	Degrees.	Degrees.
Card rooms and ring rooms.....	80	60
Mule rooms.....	95	70

By this it is understood that the means of heating shall be turned off when the temperature reaches the maximum, and that this agreement shall not be deemed to have been broken if under exceptional climatic conditions the temperature should rise above the figures named without the aid of artificial means. Employers agreed to provide thermometers in the spinning rooms.

COTTON WEAVING CONFERENCE.

NOTES OF AGREEMENTS.¹

I. General provisions:

- (a) On new machinery, all projecting set screws on continuously revolving parts shall either be countersunk or be otherwise efficiently protected.
Projecting set screws on existing machinery shall be replaced wherever practicable by grub screws. Where projecting set screws are placed inside box pulleys, they shall be deemed to be efficiently fenced.
- (b) On new machinery the following wheels shall be plated:
 - (1) Balance wheels on looms, and to be without perforations, except near the rim of the wheel;
 - (2) Flywheels on sectional warping machines, where the wheel is on the outside of the machine.
- (c) Ladders, other than stepladders, shall be fitted with hooks or other non-skid device.
- (d) Heavy overhead main driving belts or ropes shall be guarded underneath in all cases where there is liability of persons having to pass under them.
It is agreed that there may be instances where the principle of this rule should be applied to counter-driving belts.
- (e) Metal fasteners shall not be used for overhead driving belts unless the belt itself be securely fenced—provided that this rule shall not apply to metal fasteners consisting of a continuous wire stitching held together by a peg, other than a metal peg.
- (f) Any woman or girl working about machinery shall have her hair put up, or otherwise confined in a net.
- (g) A supply of sterilized dressings shall be kept available for first aid for any operative who receives a cut or wound.

¹ Annual Report of the Chief Inspector of Factories and Workshops, 1912, pp. 96, 97.

I. General provisions—Concluded.

- (h) Floors, passages, and stairways are to be kept in good repair, and free from the accumulations of dirt or size. Sand shall be provided for use on slippery floors.

II. Fencing of machinery, and other safeguards:

Winding frames: Fencing shall be provided for—

- (1) Traverse motion and mangle motion wheels, when on the outside of the frame; also when inside the frame, if the frame has an open end and the wheels are placed near that end.
- (2) Where there is a double tin roller, the toothed wheels and the rope drive at the end of the rollers.
- (3) Bevel wheels driving spindles of "Jumbo" cop-winding frames.

Warping machines:

All bevel wheels, and also teeth and pinion wheels on winding-on machines shall be fenced.

Size becks: The following shall be fenced:

- (1) Bevel wheels working dashers, unless otherwise safe by position.
- (2) Spur wheels at the side of beck (if any).
- (3) Cogs on boiling pan, and also the shaft connected with same, if the shaft is on the floor level, unless these be otherwise safe by position.

Taping machines:

- (a) On new machines the distance between the periphery of the smaller and larger cylinders shall not be less than 6 inches.

- (b) The following shall be fenced—

- (1) Set screws and bevel wheels on side shaft.
- (2) Measuring motion wheels, unless safe by position.
- (3) Bevel wheels and upright shaft for driving colored or top box (to be incased).
- (4) Speed change wheels.
- (5) Gears working cylinder at end of dry taping machines.

Looms:

- (1) Shuttle guards to be provided in all cases. Rod guards shall be fixed as low as possible. A space of not less than five-eighths of an inch must be left between the temple and the guard—provided that this part of this rule shall not apply to velvet looms or to looms of 60-inch reed space and over. Laterally the guard shall extend to at least half the shuttle's length from the spindle stud bolt on overpick looms or the trash plate on underpick looms.
- (2) Except where the hammer head always extends over the breast beam, there shall be a space of not less than three-fourths of an inch between the hammer head and the beam.
- (3) Duckbills on all loose reed looms shall be protected both above and below unless they are of such construction, or in such a position as to be equally as safe as if they were protected.
- (4) Tappet, twill motion, and barrel motion wheels on all looms, whether placed underneath or at the side of the looms, shall be fenced, unless they are safe by position behind the balance wheel, with the ingathering point on the side next the slay.
- (5) Overhead driving shaft on jacquard looms shall be fenced.
- (6) On new looms finger rooms (1 inch) shall be provided between the set screws on the heald shaft and the top of the loom.

NOTE.—Agreed to for old looms also, where it can be done by the adjustment of the bracket and the distance between the healds and the slay allows it.

II. Fencing of machinery, and other safeguards—Concluded.

(7) There shall be a space of not less than 1 inch left between the connecting rods driving the dobby and the framework of the loom, and between the stay and the picking stick a space of not less than 2 inches.

(8) No weight shall be suspended from the weight rope, or hooked onto the top of another weight, and levers shall not be allowed to project in such a way as to obstruct the alley.

This rule shall only be deemed to apply to the bottom beam.

Plaiting machines:

The spur wheels driving the bottom shaft shall be fenced.

III. Spacing of looms:

In new sheds there shall be at the backs of the looms a space of at least a foot between the flanges of the beams, and in the alleys a space of not less than 2 feet 6 inches between slay and slay. Provided that in new sheds with looms over 72 inches in width, in which overhead trolleys for the beams are not provided, there shall be a space of 15 inches left between the flanges of the beams.

IV. Cleaning machinery:

Women, young persons, and children shall not clean underneath any loom while it is in motion.

V. Lifting of heavy weights:

(1) Women, young persons, and children shall not be employed to lift, carry, or move anything so heavy as to be likely to cause injury to them.

(2) Women, young persons, and children shall not assist the overlooker in lifting beams into the looms.

VI. Lighting of dark passages and stairways:

Passages and staircases shall be effectively lighted either by natural or artificial means.

WOOLEN AND WORSTED MILLS CONFERENCE.

NOTES OF AGREEMENTS between representatives of employers, operatives, and factory inspectors made at a conference held at Bradford toward the end of 1912 concerning the fencing of machinery and other provisions for the prevention of injury to persons employed in woollen and worsted mills.¹

I. GENERAL PROVISIONS.

(1) On new machinery all projecting set screws on continuously revolving parts shall either be countersunk or be otherwise efficiently protected; where projecting set screws are placed inside box pulleys they shall be deemed to be efficiently protected.

Projecting set screws on existing machinery to be fenced unless safe by position.

(2) Ladders, other than step ladders, shall be fitted with hooks or other nonskid device—provided that in mule rooms or in rooms where persons work with bare feet, ladders shall not be fitted at the bottom with spikes.

(3) Heavy overhead main driving belts shall be guarded underneath in all cases where there is liability of persons having to pass under them.

NOTE.—This does not refer to the strap that drives the mules nor to the rope race in the engine house.

(4) The fencing for all toothed wheels shall, as far as practicable, completely surround the wheel so that there is no danger of an accident between the wheel and the guard itself.

¹ From Great Britain Home Department, Annual Report of the Chief Inspector of Factories and Workshops for the year 1912. London, 1913, pp. 75, 76.

- (5) All representatives present were of opinion that it was most desirable that women and girls working amongst machinery should have their hair put up, or otherwise confined in a net, and all agreed to use their best endeavors to see that this was done.
- (6) All firms are to be urged to keep a supply of sterilized dressings, which shall be kept available for first aid for any operative who receives a cut or wound.
- (7) Cleaning of machinery in motion was considered by all to be a dangerous practice, and should be avoided.
- (8) Floors of machine rooms and stairs to be kept clean and free from grease as far as practicable.
- (9) Periodical examination of machinery. Some person in each mill to be told off to examine, at least once a month—
 - (a) The fencing of machinery and mill gearing.
 - (b) The maintenance of proper temperature and ventilation.
 - (c) The compliance with special rules and regulations.
 - (d) The means of escape in case of fire, and fire-extinguishing appliances.
 - (e) The condition of the sanitary conveniences.
 - (f) A report to be made of each item and handed to the manager at stated times.
- (10) Lifting of heavy weights. Children and young persons should not be required to lift weights which exceed for—

	Pounds.
(a) Girls under 13 years of age.....	16
(b) Girls between 13 and 14 years of age.....	20
(c) Girls between 14 and 16 years of age.....	35
(d) Boys under 13 years of age.....	24
(e) Boys between 13 and 14 years of age.....	30
(f) Boys between 14 and 15 years of age.....	40
(g) Boys between 15 and 16 years of age.....	50

II. FENCING—WOOLEN PREPARING MACHINERY.

- (1) Rag grinders.
 - (a) Shaft ends of over 2½ inches projection and driving belts shall be efficiently fenced.
 - (b) Forks shall be provided for shifting belt from fast to loose pulley, preferably to be controlled by a worm gear.
 - (c) In new machines the driving wheel for the fan shall be a plate wheel, or otherwise efficiently fenced.
- (2) Shakers.
 - (a) The feed roller cog wheels and the chain and sprocket wheels shall be efficiently fenced.
 - (b) Satisfactory forks shall be provided for shifting the belt from fast to loose pulley.
- (3) Teasers.
 - (a) The feed roller gear, side gear, intermediate and other gear wheels shall be efficiently fenced.
 - (b) The sprocket wheel and chain drive shall be efficiently fenced where practicable.
- (4) Garnetts.
 - (a) The swift belt and pulley intakes shall be fenced.
 - (b) The intakes at stripper cylinder and fancy shall be fenced.
 - (c) The lick-in shall be provided with a guard where practicable.

III. CARDING MACHINERY—WOOLEN AND WORSTED.

- (a) There shall be fencing for the side belts on the running-in side.
- (b) All toothed wheels, including bevel wheels, shall be efficiently fenced.
- (c) The line shafting, when it runs over and near to any card which has to be fettled by men climbing onto the cards, shall be efficiently fenced.
- (d) Belt hangers shall be provided for all belts driving cards, or as an alternative a loose sleeve shall be placed round that part of the line shaft upon which the belts lie when thrown off the driving pulleys.
- (e) In all new mills, a clear space of at least 24 inches shall be allowed for persons having to pass between the carding machines, or 18 inches between the machines and the walls or other fixed structure, and this provision shall also apply to existing mills when any rearrangement of machinery takes place, if it can be adopted without any rebuilding or the reduction in the number of cards of a similar size.

IV. SELF-ACTING MULES—WOOLEN.

- (a) All the fencing of the parts named in the regulations shall be carefully maintained, and in new mules the guards for faller stops shall consist of a cover over the stop. The combined guard and faller stop shall not be deemed to satisfy the requirements of the regulations.
- (b) The fencing for the draft wheels at the ends of the mules shall cover both the top, front, and both sides of the wheels.
- (c) The drag wheels on headstocks shall be fenced.
- (d) On new machines the guards for draw-band pulleys shall extend at least half an inch beyond the pulley.

V. WASHBOWLS AND BACK WASHERS—WORSTED.

There shall be fencing for all toothed wheels.

VI. GILL BOXES.

- (a) There shall be fencing for all toothed wheels.
- (b) The back shaft shall be efficiently fenced.

VII. DRAWING AND ROVER FRAMES.

- (a) All toothed wheels shall be efficiently fenced.
- (b) The back shafts shall be securely fenced.
- (c) The lifter rack and pinion on cone machines when not safe by position shall be efficiently fenced.
- (d) The headstocks of cone drawing and roving frames shall be fitted with efficient guards to protect all jack-box wheels, and these on all new frames shall be fitted with an automatic arrangement which shall insure the guard being in position while the machinery is in motion.
- (e) Bobbin skew-gear wheels shall be covered on the top, and the covers shall be extended both in front and behind around the edge of the wheels.
- (f) Spindle skew-gear wheels shall be completely covered.
- (g) All new balance weights shall be cast with the eyelet forming part of the weights themselves.

VIII. SPINNING RING, CAP, OR FLYER.

- (a) All toothed wheels shall be efficiently fenced.
- (b) The front roller wheels shall be efficiently fenced.
- (c) The driving pulleys shall be fenced when in exposed places.

IX. TWISTING FRAMES.

- (a) All toothed wheels shall be efficiently fenced.
- (b) Driving pulleys shall be fenced when in exposed places.

X. LOOMS—WOOLEN AND WORSTED.

- (a) Shuttle guards shall be provided for the following looms:
 - (i) Box looms of all descriptions;
 - (ii) All looms of any description running at 100 picks per minute or over;
 - (iii) All looms with a reed space of 90 inches and over; and
 - (iv) Such other types of looms as the frequency of accidents shows to require guards.
- (b) Pinions and bevel wheels, and wheels driving positive set-up motion on the vertical shafts of Dobcross looms shall be efficiently fenced.
- (c) On all new looms set-screws should be countersunk or fenced.
- (d) Where the jacquard of a loom is near to a line shaft, that part of the shaft shall be fenced.

XI. WARPING MILLS.

- (a) All toothed wheels shall be efficiently fenced.
- (b) Drum lags shall be efficiently fenced.
- (c) Set screws on driver or carrier of warp beams shall be efficiently fenced.

XII. FINISHING MACHINERY—WOOLEN AND WORSTED.

- (1) Washing and scouring machines. Woollen and worsted. All toothed wheels shall be efficiently fenced.
- (2) Milling machines.
 - (a) All toothed wheels shall be efficiently fenced.
 - (b) Rope drive, if any, shall be fenced, unless safe by position.
- (3) Wringing machines. Toothed wheels on both sides shall be efficiently fenced.
- (4) Crabbing machines. All toothed wheels shall be efficiently fenced.
- (5) Tentering machines.
 - (a) All toothed wheels shall be efficiently fenced.
 - (b) When a separate steam engine is used for driving, the crank shall be securely fenced.
- (6) Raising machines or teazle gigs. All toothed wheels shall be efficiently fenced.
- (7) Brushing machines. All toothed wheels shall be efficiently fenced.
- (8) Perpetual cropping machines. When practicable, the knives shall be protected by a guard which can only be raised when the machine is standing. In the case of multiple cutting machines the first knife only need be guarded.

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